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Educational News and Editorial Comment

THE PAN-AMERICAN PEDAGOGICAL CONGRESS

In September, 1925, there will be held in Santiago, Chile, an educational congress of the twenty-one democracies of the Western Hemisphere. The Chilean government has created an organizing commission, made up of the most distinguished educators of the Republic, which will have full charge of the arrangements and conduct of the congress.

The program of subjects to be considered includes, in addition to certain general matters, such as governmental responsibility for education, revenues, international co-operation, and the purposes of education, six major groups of problems. These are as follows: "Organization and Administration," "Curricula, Methods, and Tests," "Teaching and Administrative Staffs," "Hygiene," "School Construction, Furniture, and Supplies," and "Social Relations of the School."

The minister of education of Chile has sent to the government of this country and to the governments of the other countries of North and South America an invitation to send representatives. The organizing commission issues to all who are interested in further-

ing international co-operation in educational matters a cordial invitation to attend and participate in the proceedings.

It is pointed out in the pamphlet issued by the Pan-American Union that this congress will carry forward the spirit and purpose of the World Federation of Education Associations which was established last June in San Francisco at the meeting of the National Education Association.

Americans who are interested in securing full information should address L. S. Rowe, director general of the Pan-American Union, Washington, D.C.

AN ERA OF BUILDING SURVEYS

A few years ago, if a school system found that it needed a new school building, the board of education consulted a real estate man and a local architect whose experience had been chiefly with dwellings and churches, selected a site, adopted plans, and spent the people's money for a more or less inadequate structure. In those days the school superintendent was very often ignored in the adoption of plans on the ground that the erection of a school building was a matter of business about which an educator could be expected to know very little.

Within the last five years all of this has changed. It has become the fashion for school systems to employ educational experts and to project building plans covering long periods of time. Educational programs go along with the business of selecting sites and planning the buildings. The people of the community are informed through elaborately prepared reports what the plans are and the reasons for their adoption.

Three printed documents have recently appeared dealing with building programs. The Board of School Directors of the city of Reading, Pennsylvania, has issued a volume of 222 pages, which may be purchased for $2.00, containing maps, illustrations, and tables showing in full the needs of the educational system of that city. The introductory statement of this volume is as follows:

> In every business it is not only customary but essential to make an inventory at certain set periods in order to determine the standing of the company, firm, or organization.

The public school system of America is growing by leaps and bounds, and when we stop to consider that prior to the war the school districts of the United States were spending $125,000,000 annually for school buildings and, furthermore, when our attention is called to the fact that Pennsylvania is now spending annually approximately $30,000,000 for school plants, we can gain some idea of the importance of a definite school building program, thoroughly studied and scientifically administered.

In times past it was believed that directors, superintendents, and teachers had discharged their duty, so far as housing the pupil was concerned, when they had provided four walls, a roof, hook for wraps, and a seat. The effect of the school plant has such a direct bearing upon the health, progress in school, and the future of the child that school authorities and the public generally are no longer content to conform to old traditions and obsolete schoolhouse practices.

The public insists on knowing (1) what kind of school is to be housed in the new building; (2) whether the proposed accommodations guarantee a just return to the pupils for the time spent in school and to the community for the money expended; (3) trends, shifts, and increase or decrease in total and pupil population over a period of years; and (4) what it will cost. The taxpayer has a right to know how the pupils of his community are housed and whether or not the money voted by him for school buildings, grounds, and equipment will be merely spent or wisely invested. These factors can be determined only after a thorough scientific study of the school plant has been made and a careful estimate presented covering both present and future needs.

The public of Jacksonville, Illinois, is informed by its school superintendent of its needs in an attractive and impressive pamphlet of twenty-five pages, entitled, *Building Problem of the Jacksonville Public Schools*. The first page of this pamphlet is as follows:

There seems to be a great deal of loose talk about the best method of procedure in the rehabilitation of our grade-school buildings.

Some of our citizens maintain that our present buildings are good enough, and since they were educated in them without any serious consequences they are good enough for their children. Since the present buildings were constructed, great progress has been made in the science of school-building construction. It has been determined that the physical conditions of heating, lighting, ventilation, comfort, and attractiveness of a building have much to do with the proper education of children. Other communities have seen fit to keep up with the progress of the times and have recognized that a thing good in its day may be radically out of harmony with present-day conditions. The life for which the children of today should be prepared is very different from that for which children were prepared fifty or even ten years ago.[1]

[1] When present buildings were built: Washington, 1866; Jefferson, 1859; Franklin, about 1874; Lafayette, about 1875.

There are others in the community who would be willing to have a slight increase made in their tax rate in order that the grade-school buildings might be brought up to modern requirements. These citizens feel that the increased tax is the method that should be adopted for raising the necessary funds.

Still others are equally sure that we should consolidate with the adjoining districts, provide better educational opportunities for these districts, and by thus pooling our resources secure the necessary funds without raising the tax rate above what it now is in Jacksonville. Whether or not this should be done should be decided in the light of various factors.

It is not the desire of your superintendent or board of education to sit behind closed doors and decide what is best for your school system. We prefer to feel that we are working *with* the community as well as *for* the community. These matters are for the community to decide. But in making up your minds, it is essential that you should have the facts before you. To this end the following series of articles are submitted.

An eighty-page pamphlet, entitled, *Survey Report on School Building Program for the Junction City* (Kansas) *Schools* has been prepared by the Bureau of School Service of the University of Kansas.

These three publications furnish encouraging evidence that scientific methods are becoming common in arriving at solutions of the practical problems of school administration.

CURRENT TENDENCIES IN EDUCATIONAL THOUGHT

The April issue of the *Detroit Educational Bulletin* contains a tabulation of the subjects of the papers which were presented at the February meeting of the Department of Superintendence. This tabulation reveals certain very interesting current tendencies in educational thought.

The largest number of papers which can be classified under one heading dealt with subject-matter of one kind or another. There were 50 such papers. There were 38 papers dealing with curriculum-making; 30 with vocational education and guidance; 21 with teacher-training; 18 with supervision; 17 with educational administration; 15 with school and community.

The categories adopted by the makers of the table are evidently not all of like value, but there are certain conspicuous tendencies apparent. The leading topics are constructive. Especially is it manifest that work on the reconstruction of the curriculum is engaging major attention in all parts of the country.

One additional fact of great interest as showing a movement away from the habits of an earlier day is the statement that only seven of the addresses were primarily "inspirational."

It is striking, too, that measurement was not emphasized as a separate matter. This does not mean that quantitative methods are less used today than they were a few years ago. It means, rather, that quantitative methods have been so fully adopted in all kinds of investigation that no one thinks of exploiting the fact. Nor is it necessary any longer before an audience of educators to stop and explain, as the chief phase of the discussion, the method by which one collected one's facts. The method sinks into a position of secondary importance because the constructive motives preponderate.

THE "ELEMENTARY ENGLISH REVIEW"

In March, 1924, appeared the first issue of a new journal, national in purpose and scope, bearing the title, the *Elementary English Review* (7450 Woodward Avenue, Detroit, Michigan). Under the editorship of C. C. Certain and with the assistance of a board of advisory editors geographically distributed from Massachusetts to California, this journal promises to "devote itself exclusively to the teaching of English in elementary schools with emphasis upon the social well-being of children." Articles dealing with the study and the teaching of literature, silent reading, oral reading, dramatics, composition, grammar, and spelling will be accompanied by discussions of the school library, the use of tests, and experimental teaching of various sorts. The editors undertake to meet the needs of the classroom teacher of English but by no means intend to specialize in devices and materials of instruction. Their aim, truly a worthy one, is to acquaint the readers of the journal with progressive educational thought and scientific educational investigations, particularly as they bear on the teaching of the mother-tongue.

Number I of Volume I of the *Elementary English Review* is exceedingly attractive in appearance and contains seven articles dealing with concrete materials, brief reviews of important English books, and abstracts of articles from other journals bearing on the problems of elementary English. It is evident that the new publi-

cation intends to correlate with and supplement the *English Journal*, which, as the organ of the National Council of Teachers of English, devotes itself primarily and almost exclusively to problems of English in the secondary school.

THE CHILDRENS FOUNDATION

Lewis E. Myers, of Valparaiso, Indiana, has established, through an initial gift, the Childrens Foundation, the objects of which are described as follows:

1. To inquire into and study the child, childhood and child life, and such ideas, conditions, influences, forces, institutions, personalities, and things as affect, act, or react upon the existence, growth, and well-being of children.

2. To examine into, to study, and to classify the ideas and knowledge of the race, howsoever acquired, relating to the child, childhood, and child life.

3. To disseminate by whatever ways, means, or instrumentalities that it may be possible and expedient to command, and from whatsoever sources derived, such ideas and knowledge as may be deemed promotive of individual and race culture through the well-being of children, or promotive of individual and public interest in the well-being of children.

4. To devise, to make, to originate, to test, to experiment with, and to invent, or to encourage the origination and invention of studies, materials, surveys, apparatus, equipment, and systems for the purpose of giving efficacy in the well-being of children to the ideas, knowledge, discoveries, findings, or productions of the foundation.

5. To develop whatever means, agencies, form of organization or organizations, and to employ, to purchase, to buy, or to build whatever instrumentalities may be necessary or desirable for advancing, conserving, or protecting, or giving effect to the interests and objects of this foundation.

6. To invite and to enlist in the work of the foundation the widest co-operation, good-will, and efforts of individuals, associations, institutions, or enterprises having directly or indirectly for their objects the well-being of the childhood of the human race, or having at their command the facilities or instrumentalities desirable to be employed for arousing individual and public interest in, and disseminating knowledge about, the well-being of children.

The first publication of this new organization is a volume entitled, *The Child: His Nature and His Needs*, to which a number of well-known leaders in child-study have contributed chapters. This volume is described in a prospectus as follows:

In this, its first important contribution, a volume of nearly 500 pages, fully illustrated, the Childrens Foundation undertakes to review and to inter-

pret present-day knowledge pertaining to child nature and to the well-being and education of children.

It is recognized by all who are familiar with what is being accomplished today in the investigation of child life, child well-being, and child education on the one side, and in the actual care and training of children in the home, in the school, and in the community on the other side, that there is little or no connection between the two. Most of those who are in immediate contact with children, fashioning their intellect, molding their character, and influencing their physical development, have little or no acquaintance with the vast volume of data bearing on these matters which an army of investigators is securing at home and abroad.

Indeed, only the exceptional teacher, parent, social worker, or layman has the time or the facility to assimilate even a part of the technical studies that are being conducted in our times on vital matters affecting the welfare of the young. So it turns out that much of the research relating to children is playing no rôle in the promotion of their well-being and training. Or at best, the fruits of such research are too long delayed in becoming an effective influence in the home, in the school, and in the community at large.

In *The Child: His Nature and His Needs*, the Childrens Foundation makes available for practical use and application, by parents, teachers, guardians, social workers, administrators, and legislators, the conclusions of recent researches and thoroughly authenticated experiments and experiences in the training and education of children. This study is presented in three divisions: "A Survey of Present-Day Knowledge Regarding Child Nature," "A Survey of Present-Day Knowledge Regarding Child Well-Being," and "A Survey of Present-Day Knowledge Regarding Child Education."

A EULOGY OF ORAL READING

The March issue of the official publication of the public schools of Cleveland, Ohio, *School Topics*, contains the following editorial:

Reading Aloud

"Ask the average person to pick up a newspaper and read you an article from it, and you will discover that he does not know how to read. That is to say, he mispronounces the words and gives ample indication that he does not know the meaning of many of them. The inflection or lack of inflection of his voice is further indication that he misses much of the thought and feeling of the article."

The quotation may be attributed to President Thompson of Ohio State University, for it is the substance of some of the counsel he used to give to his students.

It is to be hoped that Dr. Thompson in his chapel talks to Ohio State University students of today continues to stress the importance of being able

to read well. What brings to mind his words is the thought of an address given at the recent N.E.A. convention in Chicago by E. T. Duffield, superintendent of schools in Virginia, Minnesota.

Superintendent Duffield's topic was "The Case against Silent Reading." When he rose to speak, he explained that what he had in mind was not especially a case against silent reading as one for oral reading.

Oral reading or vocal expression he held to be the best test to determine appreciation of the thought and spirit of a piece of literature. While admitting the utility of silent reading in the educational process, he offered the following arguments in the case for oral reading:

First, it compels the pupil to determine not only the thought but the emotions.

Second, it enables the teacher to discover the impression a pupil has derived, including the apprehension of both the feelings and the facts.

Third, by compelling the pupil to go slowly, it develops his power of attention.

Fourth, it enables the pupil, by entering into the spirit of the author, to experience emotions with which he might otherwise never come in contact.

Unquestionably, how one reads aloud is a test of one's education.

When one reads an editorial of this type, one thinks of the storm that raged in Boston nearly a century ago when the schoolmasters of that ancient and conservative seat of learning were enraged by the proposal of Horace Mann that they abandon the A-B-C method of teaching reading. The Boston schoolmasters knew the A-B-C method, and they did not care to be disturbed in their pedagogical slumbers. They did not think that Horace Mann had regard for their respectable and established views.

It is a great pity that the Boston schoolmasters could not have hit upon that exquisite bit of psychology, "By compelling the pupil to go slowly, it develops his power of attention." The stately dignity of a dirge becomes under this illuminating principle the true acme of educational procedure. Why not have pupils chant in concert some of the selections in the reader? There will then result, in accordance with Points 1 and 4—which, by the way, seem to exhibit something of repetitiousness of thinking—ample emotion and, above all, there will appear, as a result of the slow rate, the ripest form of attention.

Perhaps it is not out of place for those of us who do not feel overwhelmed by the "case against silent reading" to remark that

we derive comfort from the thought that the schoolmasters of Boston who in their day were blind to the better things are totally forgotten while the progressive leader who put an end to the A-B-C method is honored as one of America's foremost contributors to educational progress.

VITAL MATERIALS FOR GEOGRAPHY AND CIVICS

A book, entitled, *The Basic Industries of the Pacific Northwest*, has been received by the *Elementary School Journal* together with the following letter from a member of the school system of Seattle, Washington, describing the preparation and distribution of the book:

You will receive a copy of a little book, *Basic Industries of the Pacific Northwest*, by Dean Howard T. Lewis, of the College of Business Administration, University of Washington. This book was published for school use by the Pacific Northwest Products Committee of the Seattle Chamber of Commerce. Its preparation was conceived at a conference between Superintendent Thomas R. Cole and J. H. Boyd, Jr., of the Chamber of Commerce committee. The book was written by Dean Lewis from data furnished by specialists in the various fields and edited for use in eighth-grade and high-school geography classes by a committee of Seattle school people. It answers a very definite school need for authentic information about the Pacific Northwest of other than the "prospectus" type.

Twenty-five hundred copies have just been furnished without charge to the Seattle schools and thirty-five hundred copies, on similar terms, to State Superintendent Josephine Corliss Preston for use in the rural schools of Washington. Commercial bodies of other Pacific Northwest cities are expected to supply their local schools, if the idea is agreeable to the school authorities.

Through the efforts of the same committee, visual-education materials of a non-advertising character, supplementing Dean Lewis' book, are also being furnished to the schools. Films and stereopticon slides on lumbering, fishing, irrigation, grain resources, flour milling, etc., have already been received.

The Pacific Northwest Products Committee, as its name implies, is concerned primarily with the promotion of local industrial growth. At the same time, its leaders have had the vision to realize the mutuality of benefits thus secured.

The following passage will give some idea of the contents of the volume:

Leading Pacific sea foods.—The total production of the three states in a recent year amounted to 508,073,527 pounds, valued as it left the fishermen's hands at $28,681,800. Of this total, Alaska's portion comprises 393,624,566 pounds, valued at $19,543,778, while that of Washington was 79,455,466 pounds,

valued at $7,631,868. That of Oregon is the smallest and amounts to 34,993,475 pounds, valued at $1,506,157.

Salmon represents the biggest single item in all three states, Alaska being by far the largest producer.

Halibut is the next most important species. Washington leads in its production. Alaska is also a heavy producer.

Cod is fourth in point of quantity and in value, while fur seal skins are third in value and herring third in quantity produced.

The production of clams, oysters, crabs, and shrimp is quite important in Washington; and, with the exception of oysters, these species are rapidly coming to the front in Alaska.

Along with the fishing operations there has grown up a very important industry in the preparation of manufactured products from a part of the fish landed by the fishermen. The Pacific Northwest and Alaska lead the world in the production of canned salmon and steel-head trout, canned shad, mild-cured king salmon and frozen fish, while many of the other products prepared are of much importance.

The salt and fresh waters of the Pacific Northwest and Alaska teem with water life. Of fish proper, about 585 species are found, but of these only about thirty species (ten of which are purely game fish) are in fairly common use.

THE CO-OPERATIVE EDUCATION ASSOCIATION OF VIRGINIA

The state of Virginia has gone farther than any other state in the Union in organizing the parents in the various communities into associations which have for their purpose the promotion of education and the better equipment of schools. The local organizations are, furthermore, federated into a general state-wide co-operative body.

The effectiveness of such an organization has several times been exhibited in the passage of progressive legislation and even in the amendment of the state constitution so as to provide better conditions for the schools. But the chief work of the association has been in the local centers where the energy of the members and the experience of other successful organizations are focused on the solution of community problems.

The United States Bureau of Education has published in a recent bulletin (Bulletin No. 53, 1923) an account of the organization and work of the association. A few paragraphs may be quoted to indicate the broad range of its interests and operations.

The association was the first agency in the state to raise its voice in the interest of compulsory education, Hon. Rosewell Page having made the initial speech on this subject from its platform. The first pamphlet on this subject was prepared by the late James H. Dooley, for many years vice-president of the association and an active member of its executive committee.

The first speeches on expert supervision of schools were also made from its platform. . . . .

The demonstration farm work was brought into Virginia through the efforts of the association, as was the work under the women demonstration agents.

The Rural Life Conference, which was held in Richmond, May 17 and 18, 1921, the first state conference of its kind held south of the Potomac River, was called through the suggestion of the association. In this conference every state department having to do with rural life co-operated. . . . .

There has developed a continually increasing co-operation between the Co-operative Education Association and the state health department in bringing about better sanitary conditions, medical inspection, district nursing, and methods for the prevention of disease; with the state highway department in working for the improvement of roads and streets; with the agricultural forces for better farming conditions; and, with the farm and home demonstration agents, great improvement has been made along all these lines in practically every community that has an organized league. The association lends its help to the department of public welfare, the state library work, and the moral forces of the state for improved moral and social conditions. . . . .

The leagues of the state hold their annual meeting as a part of the Virginia Educational Conference in Thanksgiving week. The leagues send delegates to the conference with reports of work accomplished during the year. Speakers on topics pertaining to league work are secured for the state meeting, and round-table conferences are held with league workers. A feature of the state meeting is the exhibit of work sent in by the leagues. . . . .

The association publishes a regular monthly magazine, entitled, the *Community League News*, with a circulation of 5,000 copies each month. Its purposes are to present in each issue topics of interest to those engaged in the work of the association and the reports of the work done through its agencies; to give the leagues' monthly programs; to publish articles by well-known authorities on special topics; and to keep the leagues in touch with what is being done by the various departments and organizations at work in the state.

The following is an illustration of the topics that have been treated from month to month: January, "Better Churches and Sunday Schools"; February, "Better Health"; March, "Better Roads and Streets"; April, "Better Homes and Schools"; May, "Child Welfare and Physical Education"; June, "Better Agriculture"; July, "Citizenship"; August, "Community Celebrations"; September, "Better Schools and Libraries"; October, "League Rally"; November, "State Educational Conference"; December, "Community Christmas Celebration."

THE TREATMENT OF THE GIFTED CHILD IN THE LIGHT OF THE SCIENTIFIC EVIDENCE[1]

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There are two possible benefits which may accrue to the gifted child from special treatment in the school. In the first place, time may be saved by increasing the rate of the pupil's progress through the school. In the second place, opportunity for doing work at a higher intellectual level may be provided by modifying the character of the work. This is what is usually called enrichment. Enrichment, furthermore, may be of two kinds. It may, through a modification of the method of instruction, provide for greater initiative and originality on the part of the pupil; or it may provide a different content or subject-matter from that offered to the child of average capacity. Both of these types of enrichment are reported in the sixth chapter[2] of the Twenty-third Yearbook of the National Society for the Study of Education.

The presumptive evidence, which consists in scientific measurements of the superior endowment of gifted children, suggests that both saving of time and enrichment are within the realm of possible attainment. This evidence, however, does not clearly indicate which of these objectives should be the chief aim. We may generalize the current practice in the matter, as reported in Part I of the Twenty-third Yearbook of the National Society, in the statement that the school has been fairly successful in saving time for gifted children but it has been relatively unsuccessful, according to the usual interpretation of the situation, in providing opportunity for work on a higher intellectual level. It may perhaps also be correct to say that the prevailing theory among educators and psy-

[1] Paper read before the National Society for the Study of Education, February 26, 1924.

[2] Harold Rugg, "Curriculum for Gifted Children," *The Education of Gifted Children*, pp. 91–121. Twenty-third Yearbook of the National Society for the Study of Education, Part I. Bloomington, Illinois: Public School Publishing Co., 1924.

chologists is that saving time is a comparatively unimportant objective and that enrichment is the thing at which we should aim. On the surface, then, practice seems to be at variance with theory. The prevailing trend of the discussion in the yearbook seems clearly to justify this interpretation.

Let us glance for a moment at the evidence which we have attempted to collect in the form of special studies of the results of the differential treatment of gifted children. These studies seem to confirm the observation of current practice. We may illustrate this with a number of typical examples. A. H. Martin, in his study of grade skipping in the elementary school, and Earl M. Haney and Willis L. Uhl, in their study of the university records of students who enter early, show that grade skipping provides rapid progress through the school. They show, furthermore, that in the case of pupils of comparatively large endowment this grade skipping, which we ordinarily regard as a miserable makeshift, appears to be fairly successful. Undoubtedly, grade skipping has its defects and cannot be regarded as an ideal adjustment. It does, however, provide saving of time, and this, apparently, without serious measurable injury to the pupils.

Mary L. Patrick, Anna M. Engel, J. R. Benson, and Margaret V. Cobb and Grace A. Taylor give us the results of measurements of the achievements of children in special classes. These studies appear to indicate that the children in special classes gain time but that they are not otherwise superior to children of equal endowment who have not been accelerated. This *appears* to create a distinction between mere saving of time and the accomplishment of a superior grade of work and to indicate that the organization of special classes achieves the former without the latter. I believe that this is a false interpretation of the facts, however, as I shall attempt to show.

Finally, we may comment on the studies of homogeneous grouping in the high school by R. R. Cook and Edward L. Moyer. In these studies the achievements of pupils in segregated classes were measured by means of standardized tests and compared with the achievements of pupils of corresponding intellectual capacity in mixed classes. Very little difference was found. On the surface, this again appears to indicate the failure of differential treatment

except as it may be used to secure a saving of time. It is, of course, evident that the higher group under homogeneous grouping can cover more ground than the middle or the lower group or can finish a course in less time. This, however, would be commonly regarded as merely achieving a saving of time. We may remark parenthetically that it is possible that enrichment was actually secured under the homogeneous grouping which was studied but was not measured by the tests.

The general contention which I should like to make concerning the evidence before us is that it is not only possible but probable that each of the forms of treatment studied actually secured enrichment but that this enrichment was overlooked in the types of measurement which were applied. Let us come back for a moment to our original question. I am quite in agreement with the prevailing opinion that the saving of time is not an adequate objective unless there goes with it the provision of opportunity for work at a higher level. On this point I think that there will be general agreement. The problem which confronts us is, How may enrichment be secured?

The experience of the Committee on the Education of Gifted Children indicates that there is apparent difficulty in securing enrichment as we ordinarily conceive of it. When we contrast enrichment with acceleration—hold the pupil in the grade which is normal for his age and then attempt to add something to the instruction without carrying him through the curriculum at more than the ordinary pace—we meet with difficulties. Our assumption has been that these difficulties are simply matters of practical adjustment and that the application of sufficient intelligence to the problem will enable us to secure this kind of enrichment. The fact is, however, that most school systems have largely given up the attempt and have resorted to acceleration.

We come now to the main contention which I wish to make, namely, that acceleration actually produces enrichment and that we have been securing the ends which we have sought without being aware of the fact. If this is true, all of us have been blind to the real facts of the case. The blindness, it seems to me, has consisted in identifying acceleration with the saving of time, on the one hand,

and in contrasting acceleration with enrichment, on the other hand. Acceleration is not merely saving time; it may provide enrichment, and I believe that it does.

How can this position be justified? We have become familiar with the idea, which is a basis of the Binet scale and of any age scale modeled after it, that differences in intelligence or brightness may be measured by, if not identified with, differences in mental development. To put the matter in a more direct and concrete fashion, the bright ten-year-old child is similar in his mental capacities and reactions to the average twelve-year-old child. This principle, stated in this abstract fashion, will arouse widespread opposition, and it has been criticized in its practical application in the age scales. It has substantially proved its validity, however, by the fact that it works. There are, undoubtedly, differences between children at the various intellectual levels and the corresponding stages of maturity, and a further refinement of our methods of measurement will enable us to detect these differences. Broadly speaking, however, the identification holds.

The verdict of mental tests is fairly clear concerning the likenesses and differences between younger children of higher intelligence and older children of lower intelligence. A study by Evans and Castle[1] shows that age is a relatively more important factor in the development of quickness and accuracy of movement but a relatively much less important factor in memory and reasoning. We should, therefore, expect gifted children to be equal or nearly equal to older children of the same mental age in the academic subjects but inferior to them in such subjects as handwriting and shop work. This is borne out by experience. It indicates the need of a differential adjustment among the classes of subjects.

The similarity in general intellectual achievement between younger bright children and older average children is well brought out in the overlapping of the scores of children in successive grades in all achievement tests. An illustration may be taken from a recent unpublished study by L. V. Cavins. In this study it is shown that it is possible to assign poems to their appropriate school grades by

[1] J. E. Evans and Margaret Castle, "The Relation of Mental Age to Chronological Age as Determined by Certain Individual and Group Tests," *Journal of Applied Psychology*, II (December, 1918), 308–22.

finding the percentage of children of each grade who can select the central thought of the poems. The significant fact for our inquiry is that in this test the brighter children of each grade excel the average children of the next higher grade. Thirty-two per cent of the pupils in a fifth grade excelled the median pupil of a sixth grade. The correlation between intelligence and score in the test is .46. In short, the requirements of the advanced grades are quite appropriate for the brighter children.

Why should not the identification which appears to exist in pupils' achievements hold also in the adjustment of the curriculum to gifted children? Why, in other words, is it not an enrichment in the case of a bright eight-year-old child to permit him to do the work which is ordinarily done by the average ten-year-old child? Through a long empirical process, the curriculum of the different grades has become adapted to the intellectual level of children of the corresponding ages. No one contends, of course, that this adaptation is perfect, but it works roughly. Why, then, is it not an enrichment to permit the bright child to advance to the stage of the curriculum which has been adjusted to suit children older than himself? I believe that this is a satisfactory adjustment so far as the purely intellectual demands of the situation are concerned. The work of the higher grades is different from that of the lower grades in both content and method. Children in the higher grades are given subject-matter demanding greater maturity and mental grasp, and they are permitted to attack this subject-matter through the exercise of greater originality and intellectual initiative.

Possibly this type of adjustment would not be perfect. We may discover that the gifted younger child is different in certain respects from the ordinary older child. When we discover these differences, we can make adjustments to meet them. What we need at the present time, however, is a broad basic adjustment. The refinements may come later.

The general thesis may be illustrated by a few examples drawn from the Twenty-third Yearbook of the National Society and from courses of study. An examination of the examples of enrichment which were collected for the yearbook shows that they fall into two

classes. The first class includes modifications of current practice which are appropriate not only for gifted children but also for children of ordinary intelligence. Consider the following quotations, some of which refer to enrichment and some to ordinary grading:

The pupils study "biography." . . . . They read supplemental books in addition to the basic texts. [Twenty-third Yearbook of the National Society for the Study of Education, p. 101.]

Such works as those of Lucy Fitch Perkins, Katherine Dopp, and Margaret Wells are excellently adapted to these purposes. [Grade III—*History and Civics*,[1] p. 47.]

Class exercises tend to be conducted . . . . "largely as socialized recitations, encouraging questions and discussion." [The children] carry on many special investigations, making individual reports, "some involving quite careful research." [Twenty-third Yearbook of the National Society for the Study of Education, p. 103.]

Interests may be directed naturally into projects, appreciation lessons, and the solution of problems which will contribute to a better understanding of and appreciation for the ideals of our nation. [*History and Civics*, p. 65.]

An example is cited of how a fifth grade had solved the problem raised by one of the pupils: "Why do our fathers work in large places of business while our ancestors seemed to do most things at home?" [*History and Civics*, p. 70.]

These quotations indicate the great similarity between certain types of enrichment for gifted pupils and the more progressive methods which are used in teaching children of ordinary intelligence.

The second type of enrichment provides subject-matter borrowed from the higher grades. The following citations illustrate the introduction of subject-matter which has commonly been reserved for older children:

They [gifted children] meet entirely new subjects to which normal pupils are not introduced—geology and Latin and algebra and social science and the like. [Twenty-third Yearbook of the National Society for the Study of Education, p. 101.]

We [begin] at the dawn of history and [study] prehistoric man, the cave dwellers, early Egyptian, Phoenician, and Babylonian history, and the contribution of each to civilization. [Course for opportunity classes in fifth and sixth grades, Twenty-third Yearbook of the National Society for the Study of Education, p. 101.]

A study is made of more remote history, beginning with the life of the Egyptians, Hebrews, Greeks, and Romans and continuing to the history of

[1] *History and Civics*. Course of Study Monographs, Elementary Schools, No. 6. Berkeley, California: Public Schools, 1922.

European civilization. (Summary of part of outline for Grade VI—*History and Civics*, p. 76.)

Finally, consider the similarity between older pupils and gifted younger pupils on account of their superior mastery of the art of reading.

"[These] groups use more advanced books, are encouraged to find references for themselves." They are "urged to make free use of library." [Twenty-third Yearbook of the National Society for the Study of Education, p. 102.]

The interest in reading has become an important factor. . . . . Fascinating tales . . . . afford educational opportunities for growth through the study of simple activities affecting child life in primitive times. [Grade II—*History and Civics*, p. 41.]

The view which is here set forth will be attacked on the ground that there are certain fundamental intellectual characteristics of children of a given age or stage of physiological maturity entirely apart from their intelligence or brightness. I have come to feel, however, that the burden of the evidence is against the view that this is an important factor in the child's intellectual growth. That there are certain stages of intellectual growth which correspond roughly to certain ages is not questioned. What is questioned is that this necessarily means that *children of different levels of intelligence necessarily pass through these stages at the same chronological or physiological dates.*

Acceleration will also be attacked on the ground that it is too crude a plan, since it overlooks the necessity of making detailed adjustments according to the various types of differences. It will be contended, for example, that adjustments must be made separately to suit differences in verbal intelligence, social intelligence, mechanical intelligence, and aesthetic intelligence. Adjustments to such detailed differences as these can only be supplementary to the basic classification. Differences in social intelligence must be dealt with mainly in connection with the supplementary or extra-curricular activities of the school. Differences in mechanical and aesthetic intelligence call for minor adjustments rather than a basic reorganization. These adjustments can be made in part by a reclassification in a few special subjects. This, however, need not affect the basic classification. In the case of high-school work,

specialized differences of this sort may determine the choices among courses of study.

Another objection which may be made to acceleration as a means of adjustment is that it will bring into association pupils of different physiological ages and hence different degrees of social maturity. Our knowledge of the relation between social maturity and physiological age is meager, and it is not certain that social adjustments are not in considerable measure related to intellectual development as well as to physiological development. Witness the fact that very backward children play with children younger than themselves. However, this undoubtedly raises a problem which must be met. The problem has been acute in the past because of the fact that by the customary method of grade skipping only the exceptional child has been advanced, and he has been very much in the minority.

It is probable that this difficulty can be overcome. In the elementary school, instead of the brighter pupils being promoted into higher grades which are made up largely of average pupils, the brighter pupils may be kept together, and the work of the higher grades may be brought down to them. They may then associate with the other pupils who are of the same age on the playground, in manual work, and in the general social activities of the school. This mode of adjustment, however, cannot very well be carried over from one school to another. When the break comes between the elementary school and the junior or senior high school, or between the high school and the college, it is necessary for the accelerated pupils to move into a different social group. At these points we must rely on the presence of a large enough number of accelerated children to modify the general make-up of the group to such an extent that the younger child or student will not be isolated and will therefore not be ostracized because he is an exception. In fact, the increase in the rate of advancement of children through the schools and the increase in the number of accelerated pupils which have already taken place are even now so lowering the average age in high school and college that the young student is isolated to a much less degree than he was formerly. When only a few pupils were advanced beyond their fellows, they were conspicuous and encountered difficulties in making social adjustments, but as a larger

number enter high school and college below the hitherto conventional age the young individual has a sufficient number of companions to give his age group respectable standing in the school. The introduction into the high-school or college community of a sufficiently large group whose demand for recognition rests more on intellectual attainments than on athletic prowess or the social graces may serve in time to bring intellectual achievement to a parity with these other bases of prestige.

The discussion thus far has not specifically indicated the conditions on which acceleration should be based. Physiological maturity has been proposed as a major factor in promotion. The scientific evidence, however, indicates that acceleration should be based primarily on intellectual development. The recent studies by Baldwin,[1] Prescott,[2] and Carter[3] of the development of the wrist bones as a measure of physiological maturity all indicate that the correlation between physiological development and mental age, when the effect of chronological age is neutralized, is zero. The physiologically developed pupil, in other words, is no more likely to be intellectually mature than is the physiologically undeveloped pupil of the same age. Physiological development, therefore, adds nothing to age as a basis for calculating or predicting mental maturity.

There are, of course, various ways of producing acceleration. The distinction between these different methods would carry us beyond the limits of our space. It may simply be remarked that among these ways are grade skipping, individual instruction, and segregation into homogeneous groups and special classes. Each of these may be modified in detail. Grade skipping has been sharply criticized on the ground that it causes the loss of content and that it

[1] Bird T. Baldwin and Lorle I. Stecher, *Mental Growth Curves of Normal and Superior Children*, p. 57. University of Iowa Studies in Child Welfare, Vol. II, No. 1. Iowa City, Iowa: University of Iowa, 1922.

[2] D. A. Prescott, *The Determination of Anatomical Age in School Children and Its Relation to Mental Development*, p. 46. Harvard Monographs in Education, Whole No. 5. Cambridge, Massachusetts: Graduate School of Education, Harvard University, 1923.

[3] T. M. Carter, "A Study of Radiographs of the Bones of the Wrist as a Means of Determining Anatomical Age." Unpublished Doctor's thesis, Department of Education, University of Chicago, 1923.

does not provide for a uniform rate of advancement. It is, undoubtedly, a makeshift, but it has worked better than we have been inclined to believe. The relative merits of special classes, individual instruction, and segregation will have to be determined by further experimentation.

To sum up, we have in the past emphasized the distinction between acceleration and enrichment. In so doing we have made a false distinction. The real distinction is between the adjustment which merely aims at saving time and the adjustment which aims at securing for the gifted an opportunity to do work at a higher intellectual level. We have further assumed that enrichment implies keeping the pupil engaged in the work in which the pupil of average classification of the same age is engaged. This assumption is, I believe, incorrect. Acceleration actually provides enrichment. The work of the advanced grades is intellectually superior because the method which is pursued and the content are superior to those of the lower grades. From the point of view of intellectual adjustment, then, acceleration accomplishes both the saving of time and the enrichment of the instruction. The difficulties with this mode of adjustment are not of an intellectual nature but of a social nature. These difficulties may be met by proper forms of organization, and they are being progressively diminished by the very increase in the frequency of acceleration itself. The detailed working out of the problem still presents difficulties. But we have, I believe, because of the false identification already referred to, exaggerated the complexity of the fundamental problem and have added to its complexity by an over-refinement of analysis. The problem has been in process of solution before our eyes, and we have failed to recognize it. Our task now is to devote our energies to the detailed adjustments which are necessary to make the reorganization completely successful.

A PLAN FOR SECURING THE CO-OPERATION OF TEACHERS IN THE IMPROVEMENT OF INSTRUCTION

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More than one superintendent, in considering methods of improving instruction, has thoughtlessly overlooked the possibilities of securing suggestions directly from the classroom teachers under his supervision. Teachers are daily making contributions to the technique of teaching, but, for some reason, the machinery for collecting and recording this material has never been set up. With proper organization, not only could these ideas be saved for the general improvement of instruction, but teachers could be stimulated to try experiments which would result in the development of new methods of instruction.

The general assumption is that teachers must busy themselves with the routine task of teaching and not with plans for improving the technique of teaching. Strangely enough, many teachers have accepted this assumption and have looked upon opportunities for participation in the management of the school system as extra burdens. The experience of the last few years, however, has shown that the improvement of instruction is such a huge undertaking that any general forward movement in educational practice must include active co-operation on the part of teachers as well as on the part of principals and supervisors.

In dealing with results of educational research, which is now carried on largely in university centers, the classroom teacher is called upon to discover adaptations to classroom situations. Such practical application is just as truly scientific as research itself. A tremendous amount of effort has been expended in the universities of the country in developing and distributing new ideas. Important as this work is, the immediate improvement of classroom instruction depends not merely on more ideas but on the

adaptation of the ideas already before us to the innumerable variations in classroom conditions. Every member of the teaching body must ultimately think and act according to the best that science offers. This can be accomplished if teachers are trained to apply scientific principles to classroom teaching.

One of the most effective means of aiding teachers in this connection is the systematic conservation of those methods that have succeeded. If the practices of the successful teachers throughout the country could be brought together, an educational millennium could be realized today.

After conferences with the various persons concerned, the Department of Supervision of the Detroit public schools announced in April, 1922, a plan for the conservation of instructional ideas derived from the teaching body.

Detroit has a large and growing force of keen, well-trained, and experienced teachers. Many of these teachers are making valuable contributions to classroom organization and management and to the technique of teaching, but, because of the very largeness of the system, many ideas and plans useful to the city as a whole are lost. A plan follows for systematically collecting and conserving for the entire teaching force the most valuable examples of experimental teaching. For those teachers who make such contributions suitable recognition is provided.

1. The plan as here outlined includes instructional experiments and variations from standard classroom procedure of the following types: (*a*) variations in instructional records and forms, (*b*) changes in the course of study, (*c*) suggestions for better classroom organization and management, (*d*) improved methods of teaching, (*e*) experimental investigations, and (*f*) child welfare.

2. Teachers having such suggestions and modifications to submit should state in not more than three hundred words (*a*) exactly what the experiment is ("experiment" as here used includes all such variations in standard procedure as are listed in Paragraph 1), (*b*) when the experiment was started and when it will end, (*c*) why the experiment is especially worth while, and (*d*) how the results may be used throughout the school system. This statement should be accompanied by such printed and mimeographed materials and data as are available. The statement must carry the approval of the principal of the school concerned.

3. On receipt, by the Department of Supervision, of a statement that an experiment is being conducted, the work will be inspected by the supervisor concerned. The supervisor at the time of his visit will be glad to discuss the work and give such assistance as is possible.

4. Each experiment or piece of work will be rated A, B, or C. A "C" experiment is one worthy of mention but not recommended for further use in the system. A "B" experiment is one of average promise and should be used as a basis for more extensive experimentation. An "A" experiment is an exceptionally good experiment which can be put into immediate use throughout the schools.

5. Only original experiments (experiments new to the system) will be accredited. Original experiments will be interpreted to mean those not covered by previous reports from teachers, or by written materials from the supervisory and administrative groups, or by publications of the Detroit Board of Education.

6. Each experiment will be recorded on the teacher's efficiency rating card as evidence of professional leadership and ability.

7. When materials have been accepted for city-wide use, the contributing teacher may, if she so desires, present in person the materials to the district principal or principals.

8. The *Detroit Journal of Education* will be glad to print, over the contributors' names, summaries of a limited number of such studies.

9. For those teachers who care to avail themselves of the opportunity, credit will be given by the Detroit Teachers College. Teachers desiring such credit must make the request in writing at the time of initiating the experiment, in order that suitable conferences and readings may be planned. Credit can be given only under such conditions.

As a result of the plan, teachers submitted material such as they thought might be of value to the system at large. On receipt of these materials, conferences were held, which were followed by expert assistance from the supervisor concerned. An idea of what the teachers contributed may be gained from the following list of titles:

1. Art
   - *a*) Poster booklet of Detroit
2. Music
   - *a*) Intermediate-school music
   - *b*) Class instruction in violin
3. Social sciences
   - *a*) The teaching of locational geography
   - *b*) An experiment in the use of the Rugg social-science studies
   - *c*) A study of social traits
   - *d*) Social rating
   - *e*) A study of auditorium activities
   - *f*) Patriots' reading club
   - *g*) Guide-posts to citizenship

h) Blue-prints for nature-study
i) An experiment in the social-science curriculum
j) An analytical study of history
k) Roosevelt's birthday—a seventh-grade project

4. Exact sciences
   a) Teaching eighth-grade algebra
5. Health
   a) An experiment to determine relative value of formal gymnasium in play
   b) An experiment in physical growth
   c) Physiotherapy
   d) Physical examination
   e) Health plays
6. English
   a) A course of study in vocational English
   b) The teaching of occupations in the English class
   c) A study of school papers
   d) Oral composition
   e) Individual record cards in oral English
   f) Student government
   g) A seventh-grade project in English
   h) An experiment in English and spelling
7. Reading
   a) Silent-reading lessons
   b) Devices in silent reading
   c) Materials for silent reading
   d) Group work in reading
   e) An attempt to make sight reading pleasurable
   f) An experiment in reading with X pupils in Grade IA
8. Kindergarten
   a) Safety-first in kindergartens
   b) Kindergarten objectives
   c) A kindergarten project (use of bags)
9. Domestic science
   a) A cafeteria project
10. Spelling
   a) A spelling experiment
   b) Self-promotion of pupils in spelling
11. Penmanship
   a) Position in handwriting
12. Educational tests
   a) Reading tests for classification purposes
   b) Tests for comprehension in reading

c) The use of tests for improving instruction
d) The use of tests in meeting classroom situations

13. Vocational education
a) A shop management device
b) A study of the occupational interests of school children
c) General shop work

14. Miscellaneous
a) Age-grade progress
b) Time distribution blank
c) The use of tests in supervision
d) Score-card to assist teachers in the study and rating of pupils
e) The use of pictures
f) A study of failures
g) An experiment to determine the capabilities of X children
h) Methods that libraries may use to assist teachers
i) Attendance at movies
j) Money for nicknacks
k) Reducing failures
l) The use of coaching teachers
m) A method of using tabulation sheets
n) The absences of married teachers as compared with the absences of single teachers

The Department of Supervision was early confronted with the fact that it had very little information about the real problems of classroom instruction. There was an abundance of information about what educational experts thought teachers needed but little real knowledge about what teachers wanted. In order to get more information concerning the needs of classroom teachers, a questionnaire was sent to a group of elementary schools. A number of valuable suggestions and problems were received, from which the following have been selected:

SUGGESTIONS

1. Each teacher should have a copy of mimeographed material.
2. Give demonstration lessons with opportunities for discussion.
3. Pupils must often be put to work without supervision.
4. A uniform arrangement of topics on report forms would aid in reducing the time required to fill them out.
5. There is need of some sort of a personal record or report for each child in the kindergarten.
6. If one teacher could have only one group of pupils, much time and effort would be saved for the next teacher.

7. Pupils come to believe that the work in the special rooms counts less toward promotion than the work in the home rooms because the home-room teachers mark the entire promotion roll.

8. Suggestions as to books obtainable in the library would be helpful. Often the lack of reference materials is not taken into consideration.

9. There is a lack of definiteness in courses of study; specific points are lost in a maze of words.

10. Avoid duplication of material in courses of study from grade to grade; objectives often given but no suggestions as to means of attaining them; too systematized to permit freedom of imagination and method; too difficult for children; covers too much ground for thoroughness.

11. Correlate work with other departments not indicated in the course of study.

12. It is better to incorporate technical work in composition as occasion arises or to give detached lessons for each subject.

13. Inability to understand and speak English prevents a child from taking a group intelligence test. Results of tests from children who are deficient in English should not be averaged with results secured from children of the ordinary type.

14. On account of the wide variation in ages, either chronological or mental, it is almost impossible to do work in language which will interest and benefit non-English-speaking children. There should be special rooms for such children.

PROBLEMS

1. How to keep definite lesson plans for the use of substitutes.
2. How to care for material owned by one teacher but kept by another.
3. How to learn the children's names within a short time in large classes which meet only once a week.
4. How to draw the line between too much and too little group work.
5. How to introduce something new into each class each day.
6. How to motivate lessons in simple grammatical construction.
7. How to make the pupils more responsible for lesson assignments.
8. How to break the habit of memory reading.
9. How to develop concentration in children in the Z group.
10. How to keep records, reports, etc., systematically.
11. How to stimulate the interest of the slower children.
12. How to conduct a socialized recitation.
13. How to give everyone a chance to participate in oral recitation.
14. How to give individual help to groups with varied needs.
15. How to teach children to take care of gymnasium equipment.
16. How to avoid confusion while children are correcting one another's papers; bickering over marks, etc.
17. How to avoid confusion in traditional rooms caused by changing from one subject to another.

18. How to keep entire class interested when time permits but few children to recite.

19. How to supervise a large class in composition so as to give personal attention to all who need it.

20. How to teach children to work alone during a study period while another section is reciting.

21. How to distribute materials economically and effectively.

22. How to give individual instruction to pupils for whom class instruction is insufficient.

23. How to make reviews interesting in literature.

24. How to teach left-handed children who cannot attain handwriting standards.

25. How to train children to discover and remedy their own inabilities.

QUESTIONS

1. Should a child with a high intelligence score be promoted if he lacks a foundation in subject-matter?

2. Should a Z pupil in Grade I A who is slow go on as Z in Grade II B?

3. Shall I promote a child who does good work in one subject but is a failure in another?

4. To what extent should irregular attendance affect promotion?

5. What should be done with children who are slow and yet too old to be held back?

6. To what extent should the auditorium demand effort?

7. How may auditorium work be correlated with work in other departments when each department feels that it should follow its own course of study?

8. How can a teacher adapt new methods of teaching to old courses of study?

9. How can a class of forty sixth-grade boys be handled when there is no gymnasium?

In order to acquaint them with the problems of instruction as seen by the Department of Supervision, a list of problems and references was drawn up and sent to the teachers. The complete statement follows:

Not long ago the department forwarded to the teaching body a questionnaire asking for instructional problems in order that the department, supervisors, principals, and teachers might have a better knowledge of their common problems. These problems and a list prepared by the department are here given with the thought that they may prove suggestive in planning investigations in the various fields of instruction. What is needed is studies, facts, evidence. Because of the limited space, only a few problems in the more general aspects of instruction have been listed. It has been necessary to omit problems related to the special fields of instruction. In this list, a problem

is stated and, wherever possible, one reference is given. The references, however, are not given as solutions to the problems but rather as suggestive materials.

Suggestive Problems for Further Experimentation

1. How can the instruction of handicapped children be improved? J. E. Wallace Wallin, "The Theory of Differential Education as Applied to Handicapped Pupils in the Elementary Grades," *Journal of Educational Research*, VI (October, 1922), 209–24.

2. Observation is a large factor in one's education. How can a better technique of observation be developed for classroom purposes? Daniel Starch, *Educational Psychology* (New York: Macmillan Co., 1920), pp. 132–40.

3. Definitions in dictionaries are sometimes quite as unintelligible as the words themselves. How can word concepts be developed?

4. Habit is a most powerful life-factor. Just what should be reduced to a habit basis in a given field of activity? How can pupils be taught to be masters of habit? John Dewey, *Human Nature and Conduct* (New York: Henry Holt & Co., 1922).

5. Many school systems attempt a homogeneous grouping of pupils for purposes of instruction. In the smaller schools, X, Y, Z rooms cannot be maintained for separate groups. What is the most economical procedure for handling X, Y, Z groups in small schools?

6. It is difficult to know all children personally. How do you come to know your pupils? W. C. Reavis, "Student Accounting in the High School," *Detroit Journal of Education*, III (May, 1923), 389–92.

7. How can pupils be trained to concentrate? Give typical lesson procedure. Robert S. Woodworth, *Psychology* (New York: Henry Holt & Co., 1921), pp. 244–70.

8. How can individual assistance be given to a large class of pupils with many varied interests?

9. There is a difference of opinion among educators concerning the mixing of X, Y, Z pupils. Which brings the greatest good to the greatest number, X, Y, Z pupils taught separately as groups in different rooms or taught in mixed groups—that is, which is the more effective, homogeneous grouping or heterogeneous grouping? W. W. Theisen, "The Relative Progress of VII B Groups Sectioned on the Basis of Ability," *Journal of Educational Research*, V (April, 1922), 295–305.

10. How can illustrative materials be organized for classroom use? Carter Alexander, *School Statistics and Publicity* (Newark, New Jersey: Silver, Burdett & Co,. 1919), pp. 234–302.

11. How can instructional materials be distributed in the classroom with minimum loss of time and confusion? Harmon Ebert Waits, *Practical Problems of the School* (Chicago: Benj. H. Sanborn & Co., 1921), pp. 71–72.

12. How can pupil initiative be developed? Give typical lesson procedure. George Allen Coe, "A Study in Civic Training," *Pedagogical Seminary*, XXIX (September, 1922), 205–31.

13. How can unruly pupils be interested and controlled? William C. Bagley, *School Discipline* (New York: Macmillan Co., 1915).

14. How should stimulation materials be organized and presented to produce the maximum effect? Just what are the mental processes operating in a stimulation recitation? What are the fundamental principles that should guide such work? J. Crosby Chapman and R. B. Feder, "The Effect of External Incentives on Improvement," *Journal of Educational Psychology*, VIII (September,1917), 469–74.

15. How can pupils be used in the correction of compositions? What procedure is the most economical? Walter Barnes, "The Reign of Red Ink," *English Journal*, II (March, 1913), 158–65.

16. Pupils may be taught the same instructional materials to different degrees of control, or they may be taught different amounts of material (with common core) with equal mastery. How can a class be organized to give to all pupils 100 per cent or equal mastery of materials? Henry C. Morrison, "Studies in High-School Procedure—Half-Learning," *School Review*, XXIX (February, 1921), 106–18.

17. How should a problem-solving (project) lesson be taught? "Dangers and Difficulties of the Project Method and How to Overcome Them—A Symposium," *Teachers College Record*, XXII (September, 1921), 283–333.

18. How should a study recitation be conducted? G. M. Whipple, *How to Study Effectively* (Bloomington, Illinois: Public School Publishing Co., 1916).

19. How can pupils be taught to read silently, economically, and effectively? William Scott Gray, with the co-operation of Delia Kibbe, Laura Lucas, and L. W. Miller, *Remedial Cases in Reading: Their Diagnosis and Treatment*, Supplementary Educational Monographs, No. 22 (Chicago: Department of Education, University of Chicago, 1922).

20. What instructional materials are most suitable (based on actual classroom use) for pupils of different levels of intelligence in each grade? For example, Y and Z pupils in III B reading.

21. How can the work of the recitation be more highly socialized? Charles L. Robbins, *The Socialized Recitation* (Boston: Allyn & Bacon, 1920).

22. Pupils of a given level of intelligence may show different degrees of attainment in the various subjects of instruction. How can a more flexible group of pupils be secured? Carleton W. Washburne, "Educational Measurement as a Key to Individual Instruction and Promotions," *Journal of Educational Research*, V (March, 1922), 195–206.

23. Teachers need at the initial meeting of a new class information concerning the progress of each pupil for the last semester. What information

is most essential? In what form should this information be organized to be most useful? Elize Oglesby, "Standards of Promotion" (mimeographed notes, File No. 1591, Detroit Board of Education).

24. Educational diagnosis is an important tool for the improvement of instruction. How can teachers economically use diagnosis as a guide to instruction? Bertha M. Rogers and Teresa Baker, "A Diagnostic and Remedial Activity in Supervision," *Journal of Educational Research*, V (January, 1922), 21–26.

25. "Variety is the spice of life," so says the old adage. How can variety of method be most effectively introduced into daily classroom instruction? Ruby Minor, "Principles of Method Applied in Concrete Situations," *Journal of Educational Research*, V (January, 1922), 27–44.

26. "Man does not succeed by intelligence alone." How can social progress be shown? A. S. Barr, "A Study in Social Rating," *School and Home Education*, XLI (October and November, 1921), 46–58.

27. What are the characteristics of the growth curve of children in height and weight? Norton H. Pearl and Ralph McLain, *A Course of Study in Health Instruction, Elementary Schools* (Detroit, Michigan: Board of Education, 1922).

28. The same methods of instruction are not equally effective for all types of material. Specific methods for each unit of instruction need to be developed. F. N. Freeman, *The Psychology of the Common Branches* (Boston: Houghton Mifflin Co., 1916).

29. Not all teachers can use the same method with equal effectiveness. How can methods be varied to meet individual differences among teachers. A. S. Barr, "Fundamental Tendencies in Present Day Education," *Detroit Journal of Education*, III (February, 1923), 245–56.

30. How can children be taught to take care of equipment and to be economical of supplies (thrift)?

31. How can 100 per cent attention and 100 per cent participation be secured in auditoriums?

32. What are the characteristics of the mental growth curve of children? Bird T. Baldwin and Lorle I. Stecher, *Mental Growth Curve of Normal and Superior Children*, University of Iowa Studies in Child Welfare, Vol. II, No. 1 (Iowa City, Iowa: University of Iowa, 1922).

33. What is the most effective procedure for handling non-English-speaking pupils in the elementary grades? Nina J. Beglinger, "Minimizing the Language Handicap of the Foreign Child," *Detroit Journal of Education*, III (October, 1922), 57–58.

34. Pupils in the junior and senior high schools frequently show lack of control over the tool subjects. How can elementary-school standards be maintained in these grades? C. C. Certain, "The Briggs Form Test in Use," *English Journal*, XII (April, 1923), 244–57.

35. How can a sense of responsibility be developed among pupils?

36. An outstanding problem in American life is character education. Just how can classroom instruction contribute most effectively? *Character Education Methods* (Chevy Chase, Washington, D.C.: Character Education Institution, 1922).

37. Some educators feel that pupils should have direct social training. What should be the content of a course in direct social training? Charles L. Robbins, *The Socialized Recitation* (Boston: Allyn & Bacon, 1920).

38. Many pupils fail to accomplish the most in life following school because of the lack of a sufficiently strong "desire to do so." Can a specific technique be developed for training pupils in the "desire to do so"? Robert Sessions Woodworth, *Dynamic Psychology* (New York: Columbia University Press, 1918), p. 36.

39. Can social science be taught in the secondary schools? If so, what should be the content of such a course? David Snedden, *Educational Sociology* (New York: Century Co., 1922).

40. Social-science writers today recommend the application of scientific methods to social problems. Can concrete examples of the application of scientific methods for the improvement of social practices be developed? Knight Dunlap, "The Foundation of Social Psychology," *Psychological Review*, XXX (March, 1923), 98–102.

41. How can sparks of originality be retained in pupil development? Laura M. Chassell, "Tests for Originality," *Journal of Educational Psychology*, VII (June, 1916), 317–28.

42. How can material suitable for use at the different grade levels be scientifically selected? J. Carleton Bell and Itasca B. Sweet, "The Reading Interests of High School Pupils," *Journal of Educational Psychology*, VII (January, 1916), 39–45.

43. Many educators have recognized the importance of emotional factors. How can emotions be directed? T. S. Henry, "The Education and Control of the Emotions," *Journal of Educational Psychology*, VIII (September, 1917), 407–15.

44. How can sociological principles be applied in classroom teaching? David Snedden, "Sociology, A Basic Science to Education," *Teachers College Record*, XXIV (March, 1923), 95–110.

A PROJECT IN THE SOCIAL APPLICATION OF ARITHMETIC

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At the Jesse Spalding School for Crippled Children the boys of the grammar grades have given a practical demonstration of the commercial value of applied art. For several years, as a part of their art work, they have designed and decorated Christmas cards. At the time that they began this enterprise they had very little money with which to purchase supplies. One year the boys asked for permission to take their cards home and sell them to their friends. This plan succeeded fairly well, and that year they made about ten dollars. Encouraged by this, they sold cards for several seasons. The volume of business gradually increased, and it became necessary to make different arrangements for the disposal of the cards. In 1922 the cards were sold through the school office, but no one was in definite charge of the commercial end of the plan. Several of the boys were disappointed at the meager amount received from the sales, and when the time came to plan for the 1923 season, they did not want to make cards unless they could be assured of a better business arrangement. The problem was discussed with the principal; the boys made their suggestions, and, as a result, it was decided to manage the undertaking as a project in the business applications of arithmetic.

First, a business staff was chosen. All designs for cards were to be submitted to the supervisor of art for her approval. All orders for printing were to be taken to the teacher of printing. The most skilful boy in the print shop was made assistant and placed in charge when the teacher of printing was absent. All bills were to be presented to the writer, who acted in the capacity of general manager. A pupil was appointed to receive goods and take charge of the sales; another was made bank messenger; the clerical work was done by the remaining members of the VIII B class.

Preliminary to the handling of money, the children were taken to the Reliance State Bank where the nature of the project was explained to the president and a request made that they be permitted to open a checking account. He was very friendly to the boys, and, although he understood that their balance would be small, consented to open the account in the name of the manager. To the boys he explained the difference between a checking account and a savings account, showed how the bank made little or no money on small deposits, and described the work of the payer and receiver in the bank. In this group there were eight children who had never before been in a bank. They had, therefore, a great deal to learn about deposit slips, checks, exchange on out-of-town checks, monthly statements, the window to go to for deposits, the window for withdrawals, and other matters pertaining to banking procedure.

The next plans related to advertising. It was decided to make about twenty sample books of cards and send them to prospective customers. Each boy was charged two dollars for the privilege of putting his samples in the books. This charge was made to cover the cost of the material and the making and to show the boys that advertising is an item of expense. Boys who were not painting cards prepared the books. They were paid by the hour and presented bills for their work at the end of the month.

The boys who make these cards are from the seventh and eighth grades. Any boy is privileged to submit a design. The supervisor of art decided that five of the 1923 designs were salable. When a design was drawn satisfactorily, the boy himself took it to an engraver and made arrangements concerning the price and delivery of the plate. Since all of the boys belong to very poor families, they did not have enough money to pay for their plates. Arrangements were made, therefore, to have the finished plates delivered C.O.D. at the school. They were paid for from school funds. A surplus of about one hundred dollars from the previous year's sales made this possible. When any bills were to be paid, the boys wrote out the checks, filled out the stubs, and secured the signature of the manager. In the seventh-grade course a great

deal of attention is paid to discount, and in the case of these bills the pupils gained experience with actual discounts for cash. The discounts were computed in class before the goods were delivered. When a boy received his plate from the engraver, he gave the manager a note for the amount due. The note was returned to him when the debt was paid.

The next step in the series of business operations came in the printing room. It was necessary to determine the price and quality of the paper to be used for the cards. Judging from the previous year's sales, each boy concluded that he could sell a minimum of five hundred cards. The material chosen was white kid bristol board, which came in sheets 22 by 28 inches. The cards varied in size, but each boy worked out his problem as to the number of cards per sheet and then prepared an order to the teacher of printing for the number of large sheets required. The total number of sheets was determined, and an order for the necessary paper was sent to a paper company. From the cost of the large sheets, the boys computed the cost of the cards.

At this point the meaning of overhead expenses in business was taken up in detail. It was explained that, while the pupils did their own printing, there was expense for ink, machinery, repairs, and type. Before any sales were made, each boy knew exactly how much his card was going to cost and how much profit he would make on each card. Each boy was charged 10 per cent commission to cover mailing and other incidental expenses.

As soon as the cards were ready in the print shop, the boys went to the assistant in the shop with written orders stating the number and design of cards wanted. This was the beginning of the bookkeeping. The pupils kept books with regular debit and credit columns in which they recorded the amounts owed to the school for supplies of paint, cards, and envelopes; the number of cards turned in for sale; and the amount due them. The manager also kept a book and checked with the individual boys weekly so that there would be no errors at the time of settlement. The assistant in printing also checked his record of work delivered from the print shop.

All of the preliminary work was completed by the first of October, and the sample books were mailed. Order blanks, printed in the school print shop, were inclosed with the books.

The salesroom was in the main hall of the building. The chief clerk, assisted by the VIII B class, arranged the cards in boxes. The cards were designated by letter, and each kind put in its own box. It became the duty of the pupils of the VIII B class to make the sales. They were very careful to indicate whether they had made a cash or a charge sale. The bank messenger took the receipts to the bank daily. The children filled out the deposit slips in class. A different pupil accompanied the messenger each day and deposited the money under his supervision. Many of the orders came by mail. Different children were assigned to the mailing. All orders, before mailing, were rechecked by the chief clerk to be sure that the correct number of cards was inclosed, that there were no imperfect ones, and that the package was properly wrapped and addressed. It might be added that a total of five thousand cards were sold and only one package was returned because of an incorrect address. The boys who were employed as post office messengers became familiar with cashing money orders and insuring packages.

The star artist was a sixteen-year-old boy born without arms. By means of a very wonderful operation, rudiments of arms were disclosed. To one of these an artificial arm was attached. He earned enough from his card sales to order the other arm. His cards were very popular. He soon had orders for several hundred more cards than he was able to supply. He was forced to hire other boys to help in his painting. These he paid according to the difficulty of the work, some at the rate of one cent for each card and others at the rate of three cents. Naturally, his profit was less on this work, but he soon found that with the greater volume of business he was making money. Both he and the boys whom he employed kept records of this work. Although at Christmas time he paid out over forty dollars for assistance, the payments ranging from thirty cents to five dollars, there were no disagreements between his books and those of the ten or twelve boys in his employ. His profit on the cards sold at school was one hundred and twenty

dollars, and he made about the same amount on those which he sold at home. Other boys made profits ranging from fifteen to thirty-five dollars.

The school sells another line of cards designated "school cards." These are printed from old plates. The owner is paid a small royalty for the use of his plate. In handling these cards a different plan is followed. All materials are paid for by the school, and the boys are paid a flat rate for the painting. The price varies according to the difficulty of the work. A boy is appointed to take charge of the distribution of the cards. He keeps a record of the number of cards given out to be painted. Each boy is charged for any cards spoiled. The boys keep a record of their work and present bills at the end of each month.

Some of the boys who painted had no business sense about keeping a sufficient number of cards ahead. One boy lost many sales because he never had enough cards in stock, while another boy always had at least fifty cards ahead. Usually, two hundred cards were printed at a time. Occasionally, the boys were unable to paint cards because they had neglected to order the printing.

Before Christmas there was a reduction sale in an effort to get rid of the old stock. The children determined how cheaply each card could be sold without loss. It was found that eight-cent cards could be sold for four cents and five-cent cards for two cents. This made valuable work in percentage.

Altogether, five thousand cards were sold. The largest single orders were from the American Red Cross, the Rotary Club, and the Woman's City Club. Two hundred and thirty-seven dollars was paid to boys who made individual cards. These payments ranged from fifteen dollars to one hundred and twenty dollars. The boys who worked on school cards received fifty-five dollars, in amounts ranging from thirty cents to seven dollars. Each child who sold an order of goods received a commission of 10 per cent. These commissions amounted to about ten dollars. After all bills were paid, the school had a profit of one hundred and fifty dollars.

After Christmas, the work was completed by taking an inventory of the supplies.

The results of the project were very gratifying. The children encountered many important social problems in their own daily lives and industriously worked out the solutions. They became somewhat familiar with the details of banking. They learned about bills, not from books but from direct contact with them. They handled real money, filled out real checks, made real sales and deliveries, and collected in the established coin of commerce. Nor is this all. The cycle of experience could not be complete until their profits got back into the channels of commerce. One boy bought a suit of clothes with his money; one, a radio set; one, an artificial arm; and a fourth paid the December rent for his mother.

The following is a summary of the social procedures with which it was the purpose of this project to make the children acquainted: (1) determining the number of small cards of a given dimension that can be cut from a large sheet, (2) computing the cost of a card, given the cost of a large sheet, (3) solving problems in cash discount, (4) making bank deposits and withdrawals, (5) writing and indorsing checks, (6) paying exchange on checks, (7) checking bank statements, (8) computing commissions, (9) filling orders and making out sales slips, (10) sending bills for collection, (11) checking and entering charge and cash sales, (12) mailing and insuring packages, (13) taking inventory, and (14) ordering supplies.

AN EXPERIMENT IN THE USE OF THE DALTON LABORATORY PLAN. II

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It was in December, 1922, in a course in administration which I was taking at the Harvard Graduate School of Education that I first heard the Dalton Laboratory Plan or "Contract System" casually mentioned as something well known to everyone. On inquiry, I learned the most distinctive features of the plan, namely, the laboratories or special subject rooms, the instruction by assignments, with the resulting opportunity for individual work, and the freedom from time schedules. As I happened to have a class of eighth-grade pupils of marked variation in ability and attitude toward study, it seemed to me that this plan was worth trying. While waiting for literature on the subject to give me more detailed information, I began to think out the adaptation of the plan to my own situation.

The school[1] in which I was teaching is thoroughly departmentalized, my own subjects being music and English. I taught these two subjects in the seventh grades as well as in the eighth grades. So far as the special subject laboratory was concerned, I was all ready. I could not eliminate the program; time allotments and schedules must be observed; collaboration with teachers of other subjects was no more than ordinarily feasible; but I could find out the exact amount of time available for English in school and at home; I could make out graded assignments suited to different mental capacities; I could let the pupils work individually and uninterruptedly while they were in my room; I could give them opportunities for group interaction; and I could give individual help to the pupils who needed it most. These things I resolved to attempt in the subject of English with my own eighth grade.

My first step was to separate the English course of study into its component parts of grammar, composition, and literature. I made

[1] Samuel Adams School, Boston.

out ten assignments in grammar covering all of the remaining work for the year. Each of these ten assignments was divided into three parts: minimum, medium, and maximum. The pupils who did only the first part would have a fundamental knowledge of the subject of the assignment; those who did two parts would gain a little wider knowledge and more practice in the handling of the subject; those who did all three parts would have a thorough acquaintance with many phases of the subject-matter. As no small part of the value of this system lies in its development of the power of independent study and investigation and of the power to use books and all kinds of reference material, I based my grammar assignments on the texts we had available for use, giving specific directions and illustrations to accompany each exercise to be prepared.

I proceeded in a similar way with the composition and literature assignments, not always making three divisions, however, although that was the general plan. The work in composition was designed to cover both oral and written composition; the work in literature, to cover both oral and silent reading. I made these three definite divisions of the course in English—that is, grammar, composition, and literature—in order to make sure that no one phase would be neglected. My assignments were intended to be weekly rather than monthly, as Miss Parkhurst advises for all classes studying by this plan for the first time.

I discussed the plan with the children; they received it enthusiastically. We added up all of the time that we could get for English: (1) in the regular class periods, (2) before the beginning of the recitations at each session, and (3) in the home lessons. With five hours in school and three home lessons, supplemented by fifteen minutes daily before the recitations began in the morning and afternoon, we had a total of nine hours weekly.

The first assignment was preceded not only by this little talk explaining the new system of work but by a set of general directions to be followed in the working out of all assignments and by a specific, detailed explanation of the work immediately at hand in Assignment 1. It was my practice to read the assignment through each Monday with the class, giving opportunity for questions in case the directions seemed obscure at any point to any child.

My general procedure with the children was as follows: (1) On Monday morning the pupils found on the blackboard the assignments in grammar, composition, and literature, which were to be copied. (2) Typewritten copies were posted on bulletin boards for reference after the blackboard copy was erased in case any pupil lost his copy or was in doubt about any point. (3) The pupils began work on the assignments if any time remained after they had copied the work for the week. (4) Monday afternoon, in a half-hour period which had been originally devoted to oral reading, we began the literature assignment together. I like to read *to* the children and *with* them, for I believe that is the proper way to give them a "send-off," so to speak, on their literary journey. (5) Tuesday, Wednesday, and Thursday, in all periods devoted to English, the children proceeded at their own rate of speed with individual help from the teacher when necessary and with individual correction, so far as I could give it, of all of their written work. (6) When a child finished the minimum assignment in grammar, he proceeded to the minimum in composition and then to the minimum in literature. (7) If he had time left after completing the minimum in all three divisions, he took the medium assignments the same way and then went on with the maximum assignments. (8) Each child was required to do at least the minimum amount in all three assignments before he was allowed to take up the assignments for the next week. If, for any reason, the minimum amount was not finished, he made it up as home work before the next Monday morning. (9) Friday we reserved for group conferences, oral work and recitation, and general checking up on the week's assignments.

It had been my intention to work out each assignment in grammar in a notebook of my own for use in correcting the exercises, but the children went at the work with such enthusiasm, owing to its novelty, no doubt, as well as to the chance of distinguishing themselves individually, that they forged ahead and made such record-breaking progress that I had to abandon that idea. We adopted the plan of putting the child's name on the blackboard as soon as an exercise was finished and having the books corrected in turn as fast as the teacher could handle the work. This also soon proved inadequate to meet the increased output of the children, and I therefore

asked them to think over the situation and see what plans they could offer to relieve the congestion. They suggested that the teacher should correct the exercises of the first six pupils and that these six pupils should serve as group leaders, the class meeting in sections to discuss the results together and to check up their work with the group leaders. This plan worked admirably. All of the written compositions—that is, the themes—I corrected personally with the child at my side, but the exercises in grammar and composition the pupils corrected with their group leaders.

Before the adoption of the group work, we went through every item of the grammar and composition exercises on Friday in the manner of an old-fashioned recitation, each pupil checking up his own written work; but we soon found that we were spending too much valuable time in that way, and it became no longer necessary with the adoption of the group system. We then seldom took up the minimum assignment in class discussion, unless it had presented unusual difficulties or had occasioned disagreement in the group correction, but we often discussed the more advanced part of the assignment. This gave opportunity to all who had done it to correct their work and to those who had not done it to go through it orally with the others.

We used the method of group discussion in other ways, for the literature assignments especially, the details of the plan originating entirely with the children. They first chose six group leaders. This was done almost instantaneously, for after only a week or two of this plan, the pupils found out who the able children were and selected their leaders with good judgment and no hesitancy. Each leader then chose one pupil for his own group; the selected pupil chose another, he another, and they proceeded in this way until every member of the class was placed in one or another group. Four groups could easily meet in the four corners of the room and one group in the center without undue disturbance of one another in oral discussion. The sixth group used the school hall, which was always available at the time we had set apart for this work.

Perhaps an illustration of the group work in literature would explain more clearly just what we did. In our study of "Snow-Bound," for instance, each group took a certain section of the poem

to prepare for (1) vocal expression, (2) interpretation in oral composition, and (3) written paraphrase. The pupils made individual preparation first as a home lesson, writing out their interpretation; they held group conferences where they corrected and added to one another's ideas; they rewrote the passage, making any improvements suggested to them by the group discussion; they selected members of their group to give the reading, the oral composition, and the written theme, respectively.

Another interesting bit of group work on "Snow-Bound" was done in this way. Each pupil decided which character of the poem he would take for special study. Those who selected the same character formed a group for discussion and for working out oral and written compositions.

"Rip Van Winkle" we treated similarly. By means of this division of the work among groups, we succeeded in getting a reasonably good interpretation of the whole story without the continued drudgery of minute word study, which is so deadening to interest and enthusiasm and so fatal to the development of a love for literature. Yet children of foreign parentage, as my pupils were, must have some training in getting at the thought of a passage through a study of the words and the sentence structure. We found this cooperative method of working a great incentive to real study.

Many of the valuable features of the Dalton Laboratory Plan are not possible where only one teacher in a given school is using it. For instance, the child cannot have an absolutely free program, apportioning his time to the various subjects according to his own judgment and his own needs. Neither can he continue a subject as long as his interest holds; he must go to his next recitation when the bell rings. The closest approximation which I was able to make to the principle of freedom of choice was to allow the individual pupil to choose the branch of the English work with which he would begin the week. He might then continue that branch whenever there was an English period in my room and might budget the total time for English according to his weakness or strength in the three component parts of the English assignment. As a matter of fact, the pupils exercised very little choice and gained very little power to budget their time. All of them began with the grammar and

succeeded in covering the minimum assignments in all three divisions within the allotted time, while many did the maximum amount in one or more divisions, but I found that it took much skill on the part of the teacher as well as on the part of the pupil to estimate with any exactness the amount of time required for a certain task.

In the last literature assignment, which each child made out for himself, I asked the pupils to set themselves tasks which they could do in three hours. Many of them had learned wisdom by experience and wisely limited themselves. Others, anxious to do a good piece of work and not carefully considering the time element, laid out work which cost them double the amount of time in preparation. The power to proportion the time to the task comes only as a result of long training, and, as our experiment had been of short duration, skill in that respect could not reasonably have been expected so soon. The results were in no wise discouraging, considering the fact that we alone were using the system and that we had had only four months of experience.

It is not easy to arrange for departmental cuts when only one teacher is using the system. She has no way of knowing what the other teachers are doing in their subjects except by personal investigation, and this might seem officious or curious or otherwise objectionable. I did not attempt anything in that line. I think, however, that it would be quite possible to make arrangements with any other teacher so that a composition on any topic connected with her subject would be submitted, either before or after being credited in that subject, to the English teacher for rating as an English paper. Such a plan, might I think, be welcomed by other teachers as conducive to more careful expression of ideas and greater neatness of workmanship. I hope to try this feature at some future time, but for a beginner the plan presented enough that was new without it.

Another element which is wholly unworkable when the plan is limited to one grade is the co-operation between children of different grades. As all of the pupils are in the same grade and are doing the work for the first time, there is no chance for some who have been over the ground before to assist the beginners. While there is no interaction between grades possible, there is, however, plenty of opportunity to develop, through group conferences, the spirit of

helpfulness and co-operation within the grade. Neither is it possible to allow the same freedom of communication about the work in general without the organization of the entire school on the same plan. It would be liable to misinterpretation and subject to criticism in an organization where the common formalities of discipline are the accepted custom. In my own case, I encouraged the children to talk things over together and to study and work together all they chose outside of school but restricted the schoolroom communication to group periods and to the few minutes before sessions in the morning and afternoon. So far as I gave freedom, there was no abuse of it. In the group consultations and discussions the children were invariably serious, earnest, and interested.

I do not see how promotion can be facilitated unless the whole school is organized to permit it. The brighter children do not suffer, however, because the maximum assignment can be adjusted so as to call forth their utmost efforts, and, while they may not finish the grade any sooner, they gain infinitely more in the process.

These are the main features which are either partly or wholly unworkable by a single teacher in a single subject. When the feasible elements are checked up, however, they are found greatly to outnumber the impossibilities.

First of all, the children can see the goal, and this enlists their active interest and co-operation. They can have tasks suited to their individual capacities and can progress at their own rate of speed. They learn how to study independently. They also have the advantage of uninterrupted and unhindered study. They develop a greater sense of responsibility for definite achievement. They are provided with more opportunities for natural social contacts between pupil and pupil and between teacher and pupil. The relation between teacher and pupil is changed; their attitude toward each other is that of friendly co-operation, sympathy, and helpfulness. The teacher is no longer dictator and judge but guide and counselor. There is much greater opportunity for the teacher to use initiative, to adapt her teaching to the needs of the individual child, and to give personal attention to the individual pupil. She is not dissipating her energies by trying to teach the same thing to pupils of different capacities at the same time, many of whom need the particular

lesson not at all, being perfectly able to ferret the thing out by themselves, while to others it is wholly unsuited and impossible of assimilation with any amount of effort and willingness.

The net results of my own experiment with the Dalton Plan were these: (1) The children, with no exceptions, were interested, enthusiastic, and persevering. (2) They accomplished more in quantity and improved to a marked degree in quality, that is, in correctness. (3) The brighter pupils had much greater opportunity and forged ahead rapidly. (4) The slower and less able pupils accomplished results of which I did not know they were capable, owing to the opportunity to think things out for themselves. (5) The children learned how to use books, to consult indexes, and to refer to textbooks, dictionary, and encyclopedia, when in doubt. (6) They developed desirable social qualities through the group conferences. They learned how to discuss things together. (7) Emulation spurred them on. It was friendly competition. I did not see a single instance of any ill-natured rivalry.

There were only three difficulties which I encountered. A few children, but only a very few, at first attacked the work very superficially and thoughtlessly, with the idea of getting through first as their main consideration. It took only a few assignments and a few checking-up lessons to correct this error. It was merely misdirected zeal and energy. The same pupils soon realized that the assignments called for thought if accuracy was to be attained, and they then worked with greater care.

Another difficulty arising from the same source was the deterioration in the quality of the penmanship. When we realized what was happening, we began to slow down a little, to compare our written work with grade standards, and to hold ourselves to stricter accountability. In future assignments, I shall demand less written work and more preparation for oral conferences, partly for the sake of the penmanship and partly to meet the third difficulty, namely, the work of correction.

As I have said before, the output of the children was greatly increased. At first, I was almost buried under the stack of completed assignments waiting for correction. After the adoption of the group system, that difficulty became appreciably less, all formal

exercises being handled through the groups, while all written theme work was corrected by the teacher in individual conference with the pupil.

I found no really insuperable obstacles, and the benefits to the pupils were so marked that I hope to continue the plan. In the beginning it is more work for the teacher, but it is also more satisfying, for it secures results. I shall make the assignments shorter; I shall give less written work; I shall accept only standard quality of penmanship; I shall use the graph method of recording progress. These points do not alter the essential adaptations of the plan which I made. My own experiment convinces me that it is possible to adapt it for use anywhere, as Miss Parkhurst claims. She cites in her book instances of its use in ordinary grade schools with no departmental system, in grade schools with the departmental system, and in high schools, and claims its adaptability even to rural and ungraded conditions.

SOME COMPARISONS WITH OTHER MODERN EDUCATIONAL TENDENCIES

In the gradual development of my own experience in the use of the Dalton Laboratory Plan, it grew more and more to appear to me as a unified combination of many of the excellent features that are newest in education. We hear much about "the individual child." In the Dalton Laboratory Plan the individual child has come into his rightful inheritance. He is given every advantage for self-education, while at the same time he may have the benefit of individual instruction from the teacher. He has unusual opportunity to develop independence and initiative, yet he has also more practice in co-operative work. Individuality is not fostered at the expense of social qualities.

The child receives valuable training in "the habit of success," for he is given work which is graded to suit his capacity. The demands made on him have a direct relation to his abilities. The plan provides adequately for varied types of children instead of meeting the needs of only the vague, non-existent "average" child. Furthermore, every precaution is taken against a one-sided development by the requirement that a minimum amount of work be completed in every subject.

Equally important with its recognition of the individual child is the prominence which the Dalton Laboratory Plan gives to socialization. The relation between pupil and pupil is much more natural. It is no longer a crime to "communicate"; the children are privileged to help one another openly and legitimately, as they have always wanted to do, instead of surreptitiously and unlawfully, as the usual prohibition forces them to do. Pupils always have done it and always will do it when not thwarted by the vigilance of the teacher, and the Dalton Laboratory Plan furnishes the opportunity for this perfectly natural instinct to be fostered and developed along the right lines. The danger of "copying" becomes minimized when conference and discussion are freely permitted, while the moral value of the spirit of helpfulness and friendly co-operation can scarcely be too highly rated.

In the hands of a careful teacher, this freedom of consultation with one another is safe, for children can be trained to discriminate between doing one another's work and discussing their problems together and can, moreover, be trusted to exercise this discrimination.

Socialization is also fostered by the group conferences and the class discussions. There is danger that the so-called "socialization recitation" may become a mere stereotyped preparation of questions and answers by the children. It seems to me that the Dalton Plan provides greater possibility and probability of spontaneity and of the interaction of keen, alert minds.

The Dalton Plan, moreover, does not call for the elimination of the teacher, as so many people interpret the "socialized recitation" to mean. She is there to be consulted, to be referred to in case of doubt or difficulty, and to exercise a guiding power, when necessary, in order to prevent wasteful discussion and unprofitable side-tracking. The teacher, as well as the pupil, has her place, and a very necessary one, in the socialized recitation. The Dalton Plan concedes this place to her. It gives opportunity for the socialized recitation at its best.

How does the Dalton Plan use the "project"? If we accept the general use of the word "project" as meaning something initiated entirely by the pupil himself, the Dalton Plan is not a project method, for the assignments are made out by the teacher to meet

the requirements of the course of study. There is no reason, however, why it cannot and should not include real projects. Why, for instance, cannot a pupil make out for himself an assignment in almost any subject of study and, having made it out, proceed with the performance of his self-imposed task? We did exactly that in our work in literature. Limited only by the reading material available, the children themselves selected a piece of literature for study. Using, quite naturally, the preceding assignments in literature as a guide, they decided for themselves, individually, just what they would do with this selection and then went forward with the execution of the task that they had set for themselves. They attacked this problem with great interest and admirable industry, and the results were good in the case of every pupil and were, moreover, thoroughly individualized.

It is a question in my mind whether all of the work that a pupil does should be along the line of the project idea. Until we find some other way of efficiently disposing of the few things that we still regard as fundamentally necessary to be taught, it seems to me that some work must be definitely assigned. Perhaps organization of subject-matter is unnecessary, but personally I am still unable to dispense with it altogether. The Dalton Plan permits a discriminating use of the project method as well as of the socialized recitation, and a wiser, more effective use, it seems to me.

Miss Parkhurst expresses the hope that, whereas the Dalton Plan is now applied mainly to the reorganization of already existing school systems, it may ultimately be applied to new organizations where it can develop a free curriculum composed entirely of projects set by the pupils themselves.

Even closer than its relation to the project method is the relation of the Dalton Laboratory Plan to supervised study. One must not forget that there is a difference between teaching children how to study and supervising their study, but both of these ideas are incorporated in the Dalton Plan; both are of its very essence. Anyone who attempts the making out of assignments soon finds this fact to be true, for the assignment must serve as a guide to the pupil in attacking his work; not only must it show him what his task is, but it must also show him how to perform it.

To achieve these ends, giving neither too much nor too little help, is not so simple a proposition for the teacher as it may at first appear. There are many pitfalls. Even with the utmost care, instances of misunderstanding on the part of the children may and do arise, necessitating the correction or revision of the assignment. An assignment which is worded with absolute clearness, which distinguishes essentials from nonessentials, which states the whole problem and the successive steps toward its solution, and which gives definite instruction as to procedure is a valuable lesson in the proper method of study. It should help the children to develop right habits of study if so constructed.

As to the supervision of study under the Dalton Plan, one may say that it is constant. The greater part of the pupil's time is spent in individual work, with the teacher always at hand to maintain conditions conducive to study, to give any desired suggestions as to the use of material, and to give specific help when it is called for.

One feature of the plan which deserves special note because of its marked educational value is the planning of the assignments so that the children may see the goal in view. Every good teacher knows what she intends to accomplish as the result of the year's work and knows, too, the large divisions into which the work should fall from month to month; but, so far as my own experience goes, it has not been a common practice among teachers to present the year's program or even the monthly or weekly program to the children as an organic whole, showing them how all of its component parts contribute toward the unity of the subject and how all furnish their related elements.

The Dalton Plan does this. It takes the child into the teacher's confidence; it shows him the goal toward which he is working; it enlists his interest and co-operation, because he can see a purpose in view, an object to be attained, a victory to be achieved. It shows him the essential unity of his work and its ultimate outcome, whereas the common mode of procedure leaves the child too much in the dark, blindfolds him, and makes him work almost wholly by faith and very little by sight and by reason. The teacher has always seen the goal and the relation of the lessons leading up to that goal, but she has not always realized what an inspiration and incentive a

similar vision might be to the child, so far as his capacity could comprehend it. In Miss Parkhurst's plan this breadth of vision is opened to the child. Children like the largeness of concept. It makes of the whole year's work one vast project. I believe this method may achieve one of the distinct purposes of the junior high school, namely, the retention of pupils. Children will not leave school when they see some purpose in staying.

If the Dalton Plan could be pursued year after year with and by the same children, would it not help them to develop in themselves that sense and power of organization which is so necessary a factor in happy, efficient, successful living? When it is analyzed, "seeing the goal" is recognized as one of the most valuable educational features of the entire plan.

One might go on almost indefinitely with a discussion of the ideas suggested by the so-called Dalton Laboratory Plan. Anything which is so provocative of thought is surely alive and growing. It is a system which is capable of being developed to meet one's individual needs. It is, as Miss Parkhurst claims, a plan of almost unlimited adaptability.

Recent educational thought, as expressed in magazines, journals, and newspapers, seems to have an unmistakable Dalton trend when once one's mind has been directed toward its detection. Certainly, it is a valuable contribution which Miss Parkhurst has made to the science and art of education and one which seems destined to exert a wider and wider influence as its possibilities of adaptation become realized. Such a unified combination of good ideas, both old and new, into one workable system of self-education can hardly fail to have a future of extended development.

PUPILS' AND TEACHERS' INTERPRETATION OF COMMON SCIENTIFIC PHENOMENA

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The object of the study reported in this article was to determine the extent to which individuals who have gone through the public schools as well as individuals teaching in these schools are interested in and able to answer the common scientific problems of their environment. The attempt to gather data on this question grew out of an attempt by the writer and one of his colleagues, Garry C. Myers, to prepare a manuscript answering the questions pertaining to natural science which the child in the elementary school is likely to ask. A long list of questions which children commonly ask was assembled, and from this list the twenty-five questions used in this study were selected. These questions are as follows:

1. Why will a water-pipe burst when water freezes in it?
2. Why does pop-corn pop?
3. Why does the door screech?
4. Why do you blow your soup to cool it?
5. Why do you blow your fingers to warm them?
6. Why does oil float on top of water?
7. What is the "sweat" on the water pitcher?
8. How does the worm get into the apple?
9. Why do soap bubbles rise?
10. What is hard water?
11. Why does oil placed on a pool of water prevent the breeding of mosquitoes?
12. Why does hot water crack glass?
13. When a match goes out, where does the fire go?
14. What causes fruit to spoil?
15. Why does a cake fall when the oven door is opened?
16. What makes a kite fly?
17. What causes milk to sour?
18. What is thunder?
19. What makes the rainbow?

20. Why does the bare floor feel colder to the bare feet than a soft rug?
21. Why can we see our "breath" on a cold morning?
22. Explain the fact that we see the "steam" from the whistle before we hear the sound.
23. What is taking place when water boils?
24. Why does it make us feel cooler to sweat?
25. Why is a candle flame pointed at the top?

These questions were mimeographed and, as the opportunity occurred, presented to junior high school pupils, senior high school pupils, junior-college girls, teachers in county institutes, senior-college students, and graduate students, the two latter groups being made up largely of teachers.

In order to determine whether the twenty-five questions selected for this study are questions of common interest to children, the senior high school pupils, the junior-college girls, and the teachers in county institutes were asked to indicate which questions had occurred to them at some time, especially while in the elementary school. Are these twenty-five questions representative of the subject-matter in which the child is interested? The extent to which these questions are of interest to children is shown in Table I. With the exception of a few variations, about the same interest in subject-matter is shown for all of the groups. The difference of interest, as shown by the answers to Questions 4, 5, 6, 22, and 25, is very likely due to the nature of the subject-matter as well as to the persons who make up the groups. Attention should probably be called to the fact that the high-school group consisted of boys and girls; the junior-college group, of girls; and the group of teachers, of men and women. It is interesting to note that the group of teachers had never been interested in Questions 4 and 5 and that the senior high school pupils had not been interested in Question 25.

All of the groups were allowed forty-five minutes in which to write the answers to the twenty-five questions. The answers were read and marked as correct or incorrect. In order to get a representative answer for each question, three science teachers were asked to prepare answers to the questions, and these answers were used in scoring the papers. The following illustrate satisfactory sample answers used in scoring the papers: (6) "Oil is lighter than

water, and, like cork, it floats on the surface." (24) "It takes heat to make water evaporate." "Evaporation requires heat, leaving the body cool." The percentage of individuals answering each question incorrectly is shown in Table II. It is interesting to note that

TABLE I

PERCENTAGE OF INDIVIDUALS TO WHOM QUESTIONS HAD OCCURRED AT SOME TIME

Question	117 Senior High School Pupils	163 Junior-College Girls	14 Teachers	Total of 294 Persons
1	77	65	79	70
2	53	73	79	65
3	40	20	22	28
4	43	36	0	37
5	54	37	0	42
6	96	51	22	67
7	76	63	43	67
8	42	57	72	70
9	50	34	43	41
10	54	60	65	57
11	56	19	72	36
12	70	75	72	73
13	10	47	15	34
14	74	33	36	46
15	63	76	100	82
16	50	40	44	41
17	73	44	36	52
18	70	83	57	86
19	71	84	44	77
20	30	47	50	40
21	76	71	57	62
22	54	12	22	72
23	47	33	22	38
24	59	27	44	40
25	4	51	36	31

the groups of individuals who had not been interested in a certain question when they were children invariably showed a high percentage of incorrect answers to that question. This is true in the case of the junior-college girls and the teachers who may have had the specialized sciences in the high school. For example, compare the results for Questions 3, 13, 20, and 25 in Tables I and II.

The number of individuals who answered 0, 1–4, 5–9, 10–14, 15–19, 20–24, and 25 questions correctly was determined. The results are shown in Table III.

TABLE II

PERCENTAGE OF INDIVIDUALS ANSWERING QUESTIONS INCORRECTLY

Question	13 Junior High School Boys	20 Junior High School Girls	59 Senior High School Pupils	100 Junior-College Girls	67 Teachers*	Total of 259 Persons
1.....	23	65	8	12	3	13
2.....	54	95	93	75	62	69
3.....	54	25	42	52	34	41
4.....	70	60	46	50	30	45
5.....	23	35	66	47	25	36
6.....	23	25	24	53	24	43
7.....	70	95	61	61	30	55
8.....	62	75	92	76	62	75
9.....	70	60	37	47	30	42
10.....	77	85	17	50	25	39
11.....	62	90	74	71	48	66
12.....	85	100	78	87	78	83
13.....	70	95	85	92	78	86
14.....	77	90	47	38	27	43
15.....	62	95	81	82	66	77
16.....	100	90	86	94	82	72
17.....	92	95	51	34	30	38
18.....	77	100	74	90	50	66
19.....	40	80	66	62	30	49
20.....	92	95	69	89	67	66
21.....	100	95	74	69	32	57
22.....	70	100	41	81	25	53
23.....	70	85	78	86	64	64
24.....	100	95	63	85	14	61
25.....	100	100	97	97	19	73

*Only twenty-eight teachers are represented in the case of the questions from No. 16 to No. 25 inclusive.

TABLE III

DISTRIBUTION OF INDIVIDUALS ON THE BASIS OF THE NUMBER OF QUESTIONS ANSWERED CORRECTLY

Number of Questions Answered Correctly	Junior High School Pupils	Senior High School Pupils	Junior-College Girls	Teachers	All Persons
0.....	0	0	0	0	0
1– 4.....	14	9	16	1	40
5– 9.....	18	24	59	6	107
10–14.....	0	16	21	10	47
15–19.....	1	7	4	6	18
20–24.....	0	3	0	5	8
25.....	0	0	0	0	0
Total..	33	59	100	28	220

The writer read all of the papers in order to obtain a better idea of the point of view and the background of science of the various

individuals. There seemed to be an inclination on the part of the high-school pupils to use such terms as coefficient of expansion, atmospheric pressure, reflection, etc., in a way which indicated that they were merely writing words without meaning.

A few answers from the papers may give a better idea of the knowledge of elementary science on the part of the individuals tested than the number of correct or incorrect answers. The following answers have been selected from the papers of the groups included in this study. The numbers before the answers refer to the questions. The numbers in parentheses indicate the frequency, that is, the number of times the answers were given by individuals.

ANSWERS GIVEN BY JUNIOR HIGH SCHOOL PUPILS

6. Oil floats on top of water because it is heavier. (1)
7. The sweat on the pitcher is steam. (1)
8. When the apple becomes rotten, the worm forms. (2)
8. The female worm deposits eggs on the apple blossom. (1)
10. Hard water is ice. (3)
10. Hard water is rain water. (1)
12. Hot water cracks glass because hot water is too strong for it. (1)
17. Thunder causes milk to sour. (1)
17. Heat causes milk to sour. (2)
18. Thunder is caused by clouds crashing together. (4)
18. Thunder is a noise caused when clouds hit a mountain. (1)
22. We see the steam from the whistle before we hear the sound because the steam is on top and comes off first. (1)

ANSWERS GIVEN BY SENIOR HIGH SCHOOL PUPILS

6. Oil floats on top of water because it is heavier. (2)
7. The sweat on the water pitcher is air crystallized. (1)
8. The worm is born in the apple. (3)
10. Hard water contains mineral matter. (1)
10. Hard water is rain water. (1)
18. Thunder is caused by clouds bumping together. (10)
23. When water boils, air is liberated. (6)

ANSWERS GIVEN BY JUNIOR-COLLEGE GIRLS

6. Oil is heavier than water; therefore, it stays on top of the water. (10)
6. Oil floats on top of water because oil and water do not mix. (6)
7. The sweat on the pitcher is the moisture which comes through the pitcher. (4)

8. The worm in the apple forms from the decaying apple. (3)
8. The worm forms from a germ. (1)
10. Hard water is water that comes down as rain. (2)
10. Hard water is cold water. (2)
10. Hard water is water containing no lime. (3)
12. Hot water cracks glass because it dissolves it. (1)
16. The kite flies because it is lighter than the air. (3)
18. Thunder is caused by clouds bumping together. (41)
23. When water boils, it is being decomposed. (2)
23. When water boils, air is being driven out. (1)

ANSWERS GIVEN BY TEACHERS

6. Oil floats on top of water because oil and water will not mix. (5)
6. Oil floats on top of water because oil is heavier than water. (3)
6. Oil floats on top of water because it is greasy. (2)
7. Sweat on the pitcher is water evaporated through the pores of the pitcher. (1)
8. The worm in the apple has developed from bacteria on the apple or in the air. (1)
8. The worm in the apple has developed from seed. (1)
10. Hard water is rain water. (1)
17. Milk sours because of heat and thunder. (1)
17. Milk sours because a little animal called bacteria gets in it. (2)

CONCLUSIONS

The subject-matter of the sciences (biology, chemistry, physics, etc.) dealing with the environment appeals to the child of the elementary school. There seems to be evidence that when the questions dealing with the common scientific phenomena are not answered before the pupil reaches the high school, the interest diminishes, with the result that even the adult with years of experience in teaching is not sufficiently aware of the phenomena about him to attempt answers to these common questions.

With more careful consideration of the subject-matter for elementary science in Grades I to VI and in the junior high school, we should be able to stimulate the pupils to ask and to answer questions dealing with their environment. The same consideration should be given the subject-matter for the science courses in the high school.

THE EFFECT OF THE SUMMER VACATION ON THE READING ABILITY OF FIRST-GRADE CHILDREN

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In Minneapolis promotion in the first grade is based largely on the reading ability of the pupils. Promotions occur twice a year. The question of advancement in January depends on the ability of the child at that time. In June, the problem is complicated by the long summer vacation. The teacher must ask herself whether a child who would otherwise fail would be likely to make any further progress in reading during the summer. Should promotion depend on his ability in June, or should the final decision be made in September?

The Research Bureau of the Minneapolis schools undertook an investigation to determine statistically the effect of the summer vacation on the reading ability of first-grade pupils. Twelve classes were used in this investigation. They were in four different schools and averaged thirty-eight pupils each. In June these pupils were still classified on the basis of the quarter plan which had been in use in Minneapolis for a number of years. The pupils who had been in the first grade only twelve weeks were called I C; those who had been in the first grade for twenty-four weeks were called I B, and those who had been in the first grade for thirty-six weeks were called I A.

To secure a measure of their reading ability before and after the summer vacation, two tests were given, one during the last week of the spring quarter and one during the first week of the fall term, immediately after the pupils had re-entered school. The Minneapolis Primary Reading Test and the Haggerty Reading Examination, Sigma I, were used. The Minneapolis test consists of sixteen silent-reading exercises arranged in the order of difficulty. It is suitable for first-grade work only and has been found too easy for most second-grade pupils. The Haggerty test measures the ability

of the child to read silently and to follow simple directions. It measures ability of a somewhat higher level than that measured by the Minneapolis test. No attempt was made to secure a measure of the oral-reading ability of the pupils. Silent reading had been stressed in the first grade.

The pupils were not told that they were to be retested in September. Identically the same tests were used for both measurements. No attempt was made to determine what the reading activities of the pupils had been during the summer vacation. Undoubtedly, they were similar to those to be found in any group of normal children. The results of the tests indicate that there was probably much reading done by some of the pupils since there was a large growth in individual cases. However, this is a factor quite beyond the control of the school and for the purposes of this investigation was ignored.

Table I shows the distribution, on the basis of their scores on the Minneapolis Primary Reading Test, of all of the pupils in Grades I C, I B, and I A who were present for the tests in both June and September. This table should be read as follows: in June, 12 I C pupils made a score of 16 points on this test; 21 pupils made a score of 15, etc. The third column gives the results for September. The difference between the June and the September results represents the difference in the ability of the pupils in June and September. It is a measure of the effect of the summer vacation on their reading ability. A lower score in September than in June indicates a loss in ability.

The median scores for each grade were lower in September than they were in June. The I C classes were 2.1 points lower; the I B classes, 1.5 points lower; and the I A classes, 2.1 points lower. In terms of the June scores, the percentages of loss are 22, 10, and 14, respectively. The greatest loss was in Grade I C, that is, in the case of the pupils who had had only twelve weeks of training in reading. A larger number of perfect scores was found in Grades I C and I B in June than in September, but the ranges in the scores for the classes were about the same. The difference in the distribution of the scores for these grades is marked. In Grade I C the scores tend to pile up at the lower end of the distribution, especially

in September. In Grade I B they tend to pile up at the top. As a consequence, the median scores for Grade I B are higher than the median scores for Grade I C. There is only a slight difference between the median scores for Grades I B and I A. In June the I A median was .2 higher than the I B median, while in September the I B median was .4 higher than the I A median. The Minne-

TABLE I

DISTRIBUTION OF THE PUPILS ON THE BASIS OF THEIR SCORES ON THE MINNEAPOLIS PRIMARY READING TEST

Score	Grade I C		Grade I B		Grade I A	
	June	September	June	September	June	September
16	12	4	30	9	11	3
15	21	6	19	15	15	8
14	14	10	11	17	2	4
13	17	8	10	17	3	7
12	10	8	10	10	5	3
11	6	11	2	11	1	4
10	9	9	2	3	.....	3
9	11	15	2	1	2	2
8	11	12	1	4	.....	1
7	12	22	.....	3	1	3
6	11	12	1	.....	.....	.....
5	10	18	1	.....	1	.....
4	15	14	2	2	.....	2
3	11	15	2	.....	.....	1
2	8	7	.....	.....	.....	.....
1	2	6	1	1	.....	.....
0	.....	3	.....	1	.....	.....
Total	180	180	94	94	41	41
Median	9.7	7.6	15.1	13.6	15.3	13.2

apolis test apparently affords a fairly adequate measure of certain very elementary reading abilities, but is too easy for pupils with more than a semester's training. This can be seen from the large percentage of perfect papers in Grades I B and I A.

Table II shows the distribution of the pupils in Grades I B and I A on the basis of their scores on the Haggerty Reading Examination, Sigma I. The test results for Grade I C are not given, since the pupils in this grade could do little with the test material. This table shows little difference between the reading abilities, as measured by this test, in June and September. In Grade I B, the June

median was 7.6, and the September median was 8.1, a net gain of .5. In Grade I A the median scores were 17.4 and 17.3, a net loss of .1. There is a difference of 9.8 points between the June medians for these two grades. This difference, other things being equal, is a measure of the growth in reading ability due to the additional twelve weeks of training secured by the pupils in Grade I A. It

TABLE II

DISTRIBUTION OF THE PUPILS IN GRADES I B AND I A ON THE BASIS OF THEIR SCORES ON THE HAGGERTY READING EXAMINATION, SIGMA I

SCORE	GRADE I B		GRADE I A	
	June	September	June	September
39	.....	.....	.....	3
37	.....	.....	2	1
35	.....	.....	1	2
33	.....	.....	2	7
31	.....	.....	6	4
29	.....	.....	7	6
27	.....	.....	3	5
25	.....	2	8	3
23	.....	1	8	3
21	1	3	5	5
19	.....	5	5	11
17	8	6	29	23
15	10	6	12	13
13	12	3	17	12
11	5	10	8	10
9	5	11	9	7
7	18	15	6	12
5	24	19	7	5
3	18	11	2	4
1	6	15	1	2
0	.....	.....	.....	.....
Total	107	107	138	138
Median	7.6	8.1	17.4	17.3

should be pointed out that there was practically no growth in the reading ability of the I B pupils during the summer vacation of eleven weeks. This lack of growth affords a clear measure of the effect of the summer vacation on the general reading ability of children in this grade. It shows that with no training in reading under the direction of the school there was for these pupils no improvement in reading. So far as growth in reading ability was concerned, they were practically at a standstill.

Table II shows that there was a great range in the ability of the pupils of both grades. There was a large amount of overlapping. The range of scores was wider in September than in June. The lower limits were the same, but there were several higher scores in September than in June. The question of the reliability of the grading of these pupils may well be raised. There were pupils in Grade I B who were superior in ability to second-grade pupils.

In order to make it possible to study the differences in the scores for individual pupils in June and September, the data for both tests and for all grades were tabulated in the form of correlation tables. Table III gives the data for the Minneapolis Primary Reading Test

TABLE III

CORRELATION OF JUNE AND SEPTEMBER SCORES FOR GRADE I C IN THE MINNEAPOLIS PRIMARY READING TEST*

SEPTEMBER SCORES	JUNE SCORES										
	0	1	3	5	7	9	11	13	15	16	Total
16	....	....	....	....	....	....	....	....	2	1	3
15	....	....	....	....	....	....	....	....	4	....	4
13	....	....	....	....	....	....	....	6	5	2	13
11	....	....	....	....	2	3	3	4	4	....	16
9	....	....	....	....	1	3	6	5	1	....	16
7	....	....	1	3	3	5	2	2	....	....	16
5	....	....	....	3	5	2	1	....	....	....	11
3	....	2	5	1	2	2	1	1	....	....	14
1	....	2	5	1	1	....	....	....	....	....	9
0	....	....	2	....	....	....	....	....	....	....	2
Total	....	4	13	8	14	15	13	18	16	3	104

* The correlation of the June scores with the September scores is .81.

for Grade I C. This table should be read as follows: One pupil made a score of 16 in both the June test and the September test; two pupils made a score of 15 in the June test and a score of 16 in the September test, etc. It is interesting to note individual variations. One pupil making a score of 13 in June made a score of 3 in September. Six pupils made a score of 13 each in both June and September. Another pupil made a score of 3 in June and a score of 7 in September. Pupils whose score was 3 in September had scores ranging from 1 to 13 in June. Similar variations can be noted for all scores, except for the very high ones.

Table IV shows that five pupils in Grade I B made a score of 16 on the Minneapolis Primary Reading Test in both June and September. Two pupils making a score of 16 in June made a score of 9 in September. Another pupil made a score of 7 in June and a score of 13 in September. The individual variations between the June and the September scores are smaller for Grade I B than for Grade I C. The variations are not as great in Grade I B as in Grade I C. Most of the scores pile up at the higher end of the distribution. The additional twelve weeks of training received beyond I C resulted in the fixing of certain elementary reading habits which with less training were more or less temporary.

TABLE IV

CORRELATION OF JUNE AND SEPTEMBER SCORES FOR GRADE I B IN THE MINNEAPOLIS PRIMARY READING TEST*

SEPTEMBER SCORES	JUNE SCORES										
	0	1	3	5	7	9	11	13	15	16	Total
16	....	....	....	....	....	....	....	....	1	5	6
15	....	....	....	....	....	....	....	6	5	5	16
13	....	....	....	....	1	....	2	10	9	8	30
11	....	....	....	....	....	4	8	3	5	1	21
9	....	....	....	....	....	....	....	....	2	2	4
7	....	....	....	1	....	....	2	4	....	....	7
5	....	....	....	....	....	....	....	....	....	....	.....
3	....	....	4	....	....	....	....	....	....	....	4
1	....	....	....	1	....	....	....	....	....	....	1
0	....	1	....	....	....	....	....	....	....	....	1
Total	....	1	4	2	1	4	12	23	22	21	90

* The correlation of the June scores with the September scores is .74.

Table V gives the data on the Minneapolis Primary Reading Test for Grade I A. This table also shows interesting variations. Two pupils have a score of 16 for both June and September. One pupil with a score of 16 for June made a score of only 7 in September. Another pupil making a score of 9 in June made a score of 15 in September. Three pupils scoring 5, 7, and 9 in June made each a score of 3 in September. Three other pupils with scores of 11, 13, and 15 in June made each a score of 7 in September; seven made the same scores in September as in June, and thirty-seven pupils lost

from 1 to 9 points. Taken as a whole, the difference between the June and the September scores is small.

These results show that there were pupils in all of the grades who made no improvement in reading ability during the summer. There were others who made large gains, and there were others who lost. The net result was a slight loss for the three grades. The variations were greatest in Grade I C.

TABLE V

CORRELATION OF JUNE AND SEPTEMBER SCORES FOR GRADE I A IN THE MINNEAPOLIS PRIMARY READING TEST*

SEPTEMBER SCORES	JUNE SCORES										
	0	1	3	5	7	9	11	13	15	16	Total
16	....	....	....	....	....	....	....	....	....	2	2
15	....	....	....	....	....	1	....	....	1	8	10
13	....	....	....	....	....	....	1	2	8	4	15
11	....	....	....	....	....	....	2	2	1	2	7
9	....	....	....	....	....	....	2	....	1	2	5
7	....	....	....	....	....	....	1	1	1	1	4
5	....	....	....	....	....	....	....	....	....	....	.....
3	....	....	....	1	1	1	....	....	....	....	3
1	....	....	....	....	....	....	....	....	....	....	.....
0	....	....	....	....	....	....	....	....	....	....	.....
Total	....	....	....	1	1	2	6	5	12	19	46

*The correlation of the June scores with the September scores is .59.

Table VI shows the relation between the June and September scores of the pupils in Grade I B on the Haggerty Reading Examination, Sigma I. There is a fair correlation between the scores. A few individual scores are noteworthy. Three pupils making a score of 13 in June made scores of 19, 21, and 25 in September A pupil making a score of 11 in June made a score of only 5 in September. On the whole, the gains or losses were small.

Over one-fourth of the pupils had neither gained nor lost at the time the September test was given. The correlation between the June and September scores was .64. This indicates fairly close agreement between the grouping of the pupils in September and the grouping of the pupils in June. There was much less variation in this test than there was in the case of Grade I C in the Minneapolis Primary Reading Test.

TABLE VI

CORRELATION OF THE JUNE AND SEPTEMBER SCORES FOR GRADE I B IN THE HAGGERTY READING EXAMINATION, SIGMA I*

SEPTEMBER SCORES	JUNE SCORES										
	0	1	3	5	7	9	11	13	15	17	Total
25	....	....	....	....	....	....	....	1	....	....	1
23	....	....	....	....	....	....	....	....	....	....	.....
21	....	....	....	....	....	....	....	1	....	....	1
19	....	....	....	....	....	....	....	1	1	2	4
17	....	....	....	....	....	....	....	....	4	....	4
15	....	....	....	....	....	....	....	2	2	....	4
13	....	....	....	....	....	1	....	1	1	....	3
11	....	....	....	....	1	1	1	2	....	....	5
9	....	....	....	....	4	....	....	1	....	....	5
7	....	....	2	3	5	....	1	....	....	....	11
5	....	1	3	6	1	1	1	....	....	....	13
3	....	....	2	3	2	....	....	....	....	....	7
1	....	....	4	2	....	....	....	....	....	....	6
0	....	....	....	....	....	....	....	....	....	....	.....
Total...	....	1	11	14	13	3	3	9	8	2	64

* The correlation of the June scores with the September scores is .64.

Table VII shows the correlation of the June and September scores for Grade I A in the Haggerty Reading Examination, Sigma I. Two pupils made a score of 37 in June and a score of 39 in September; one pupil made a score of 31 in June and a score of 39 in September; another pupil made a score of 31 in June and a score of 37 in September. The greatest variations occurred in the cases of those pupils who lost from June to September. One pupil dropped from a score of 33 in June to a score of 11 in September. Four pupils with scores of 27, 21, 19, and 11 in June made scores of 13, 5, 3, and 1, respectively, in September. Thirty-one pupils, or less than one-third of the total number, made the same scores at both testings. Most of these pupils scored at or below the June and September medians. The correlation between the June and September scores is .71. This is higher than the correlation for Grade I B.

It was possible to secure the ratings of 129 I C children on the Detroit Kindergarten Test, which was given to them before they entered the first grade. A comparison of the scores on this test and

TABLE VII

CORRELATION OF THE JUNE AND SEPTEMBER SCORES FOR GRADE I A IN THE HAGGERTY READING EXAMINATION, SIGMA I*

SEPTEMBER SCORES	JUNE SCORES																				
	0	1	3	5	7	9	11	13	15	17	19	21	23	25	27	29	31	33	35	37	Total
39	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	2	3
37	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	1
35	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	1
33	...	...	...	...	...	...	...	...	...	...	...	...	3	1	1	1	...	...	...	...	6
31	...	...	...	...	...	...	...	...	...	...	...	...	...	2	...	1	...	...	...	...	3
29	...	...	...	...	...	...	...	...	...	1	...	...	1	...	...	...	...	...	...	...	2
27	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	1	...	...	...	...	2
25	...	...	...	...	...	...	...	...	2	...	...	...	...	...	...	...	...	...	...	...	2
23	...	...	...	...	...	...	...	1	...	...	1	...	...	...	...	...	1	...	...	...	3
21	...	...	...	...	...	...	1	...	...	...	...	1	...	...	...	...	...	...	...	...	2
19	...	...	...	...	...	...	1	2	...	3	...	1	...	...	...	...	...	...	...	...	7
17	...	...	...	1	...	...	...	1	4	15	...	...	...	...	...	...	...	...	...	...	21
15	...	...	...	1	...	1	...	2	3	5	...	...	...	...	...	...	...	...	...	...	12
13	...	...	...	1	...	...	1	3	1	1	1	...	...	...	1	...	...	...	...	...	9
11	...	...	...	...	...	1	1	4	...	...	...	...	...	...	...	...	...	1	...	...	7
9	...	...	...	1	2	1	...	2	...	...	...	...	...	...	...	...	...	...	...	...	6
7	...	...	1	...	4	4	2	...	1	...	...	...	...	...	...	...	...	...	...	...	12
5	...	...	...	1	...	2	...	...	...	...	...	1	...	...	...	...	...	...	...	...	4
3	...	...	1	2	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	4
1	...	1	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	2
0	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	..
Total...	...	1	2	7	6	9	7	15	11	25	3	4	4	4	2	3	3	1	...	2	109

* The correlation of the June scores with the September scores is .71.

the scores on the Minneapolis Primary Reading Test is given in Table VIII. This table should be read as follows: The median scores on the Minneapolis Primary Reading Test in June and September for six pupils who made scores of less than 15 on the Detroit Kindergarten Test were 6 and 2 respectively. This represents a loss of 4 points. From this table it is seen that there is a

TABLE VIII

MEDIANS FOR THE MINNEAPOLIS PRIMARY READING TEST ARRANGED ACCORDING TO SCORES ON THE DETROIT KINDERGARTEN TEST, GRADE I C

SCORES ON THE DETROIT KINDERGARTEN TEST	NUMBER OF CASES	MINNEAPOLIS PRIMARY READING TEST		LOSS	
		June	September	Number of Points	Per-centage
Under 15.....	6	6.0	2.0	4.0	67
15–19.....	18	7.7	5.5	2.2	29
20–24.....	52	10.0	6.5	3.5	35
25 and over...	53	11.7	9.3	2.4	21

direct relation between the intelligence scores and the reading medians. The medians for both June and September increase steadily from the pupils scoring the lowest in the Detroit Kindergarten Test to those who scored highest. The lowest intelligence group had the greatest loss, but there were only a few pupils in this group. The loss for pupils with scores on the Detroit Kindergarten Test of 25 or over was the least on a percentage basis, being only 21 per cent of the initial score.

CONCLUSIONS

1. There is little difference between the reading ability of children in Grades I B and I A in June and in September after the summer vacation. This is shown by the results of the Minneapolis Primary Reading Test and the Haggerty Reading Examination, Sigma I.

2. In general, the I C pupils who scored the highest on the Detroit Kindergarten Test made the highest scores on the Minneapolis Primary Reading Test. The losses from June to September on the Minneapolis Primary Reading Test seem to indicate that the pupils with low intelligence scores lost the most in reading ability.

3. Individual variations are very great in some cases, the differences on the Haggerty Reading Examination, Sigma I, being as high as 22 between the two testings. These cases should be made the subject of careful study.

4. The correlations between the June and the September results range from .59 in Grade I A to .81 in Grade I C. This indicates that the children were grouped in September very much as they were in June.

Educational Writings

REVIEWS AND BOOK NOTES

Revision of the Yerkes point-scale tests.—Those who are familiar with the Yerkes point scale and who have used it for intelligence testing will welcome a recent revision and extension of this scale.[1] In the case of the original discussion, prepared in 1914, Dr. Yerkes had associated with him James W. Bridges and Rose S. Hardwick. The work of the present revision, which is in effect a rewriting, was largely done by Mrs. Josephine Curtis Foster, who has been associated with the experimentation involved in the reconstruction of the scale.

Students of intelligence testing are familiar with the fact that the work of Yerkes and his associates had distinctive characteristics; it was not fundamentally a revision of the work of Binet, although considerable Binet material was used. It advocated a continuous "point scale" rather than an age-group method of evaluating mental ability. This was not only an improvement on Binet's method of scoring by mental age but a competitor of Terman's method of scoring by intelligence quotients based on mental-age groups.

The rivalry between the two American plans of measurement, the Stanford scale and the Yerkes point scale, was a situation somewhat analogous to the discussions about the English and metric systems of linear measurement. The point scale seemed to have mathematical logic on its side, but in practice the intelligence quotient has since swept the field, and the scores in the present revision are translated into I.Q.'s instead of coefficients of brightness, which were advocated in the earlier work but are now abandoned. Measurements by point scales, if they could have been extended and applied to all school-products tests as well as to intelligence tests, would have given us an easy and ready method of comparison and a more easily understood uniformity. But practice has preferred the more individualistic variety and the more cumbersome "accomplishment, achievement, educational, and other quotients" as a solution of the problems of comparison between ages and school performance. The translation of these into "points" on a 100-point scale basis now seems likely to be brought about by McCall's "T-scale" plan. But surely the direct method which might have resulted from Yerkes' suggested scale would have been much more economical.

[1] Robert M. Yerkes and Josephine Curtis Foster, *A Point Scale for Measuring Mental Ability*. Baltimore: Warwick & York, Inc., 1923 [revised]. Pp. viii+220. $2.10.

A more significant phase of the revision involves the value of the scale as a mental test. The earlier form of the work was found to be most reliable for ages six to twelve. The revision adds material to this "pre-adolescent" scale for ages three to six, called an "infant" scale, and for ages twelve to sixteen, called an "adolescent" scale, intended also as a method of measuring adult intelligence. However, only tentative values are claimed for these additions. A revision of this material is promised later, and the present publication is offered only to "serve examiners temporarily as rough norms or standards."

Aside from the descriptions of the tests and the method of scoring, there is considerable material of an argumentative and critical nature on the relative merits of the point-scale method of testing as compared with the Binet and Stanford methods. The comments on the Binet method have been changed from detailed fault-finding to more general principles of criticism.

A large part of the earlier edition, giving the data acquired in the process of standardizing the first form of the scale, is now omitted and is replaced with summaries of more extended studies.

It is to be regretted that this revision has been published in its present form. The original edition was exhausted. Requests for it led the publishers to decide to make the book available as first written or as revised. The present revised form is certainly premature. In the earlier work Yerkes made certain proposals for a "universal point scale" and formulated what he called the "principles of a universally applicable measuring scale for mental ability." The expectations of 1915 were seriously interfered with by the war-time activities to which Dr. Yerkes had to turn his attention. This interruption resulted in taking his two co-workers out of the field and prevented the realization of the proposal then made. The present revision makes such a small, hesitant step in advance toward the ideal there outlined that it would seem better to have delayed publication for a time.

M. J. STORMZAND

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Popularizing scientific knowledge.—A well-known scholar and author, not professionally a student of education, has entered the educational arena with a direct challenge to much of the current practice in teaching and in textbook-making. In writing his new book[1] James Harvey Robinson marks out a new trail and follows it himself. He shows what a vast gulf has come between the practical common man in daily life and the scientist, mostly secluded or out of touch with the workaday world.

The author attacks the problem of the diffusion of sound scientific ideas and attempts to account for the condition which he thinks faces administrators and leaders of education, namely, a vast and invaluable amount of exact

[1] James Harvey Robinson, *The Humanizing of Knowledge.* New York: George H. Doran Co., 1923. Pp. xii+120.

scientific information, very little of which has become part of the common knowledge of the people.

The author thinks that man has always been indifferent to science. Even now this indifference is one of the most characteristic features of our time. From the earliest history man has believed for the most part what suited him best and pleased him most. Speculation and deductive reasoning have not aided much in advancing the knowledge of the world, for, indeed, "logical definition and speculation can operate quite well, indeed better, on unreal presuppositions than on experimentally verified ones" (p. 22). "Most of our beliefs are very ancient and of untraceable origin, even though they may be set out in very precise and logical terms by a Thomas Aquinas or a Calvin" (p. 24). This, then, is what makes the scientist austere. He must resolutely turn away from the mass of mankind.

The success of modern scientific endeavor has been mainly in proportion as it resolutely refused to consider any phenomena in terms of human interests or impulses. This means the dethronement of man. He becomes only an infinitesimal part of the universe which no longer exists for him alone. The result is a severe detachment of the scientist from the ordinary interests of life. In the words of the author, both he and his work become *dehumanized*.

Yet, in spite of this aloofness on the part of science and scientific workers, experimental science occasionally becomes a matter of common concern. This occurs, the author says, in three ways. In a few cases the results of scientific investigation have formed themselves into impressive generalizations which have caught the attention of laymen, such, for example, as the heavenly bodies being brought into subjection to physical, chemical, and mathematical laws. In the second place, certain details of scientific discovery have been reduced to the service of man and have resulted in large pecuniary profits and physical well-being, as in the application of science to material production and social welfare. A third form of scientific research has become of passing interest to the layman—that concerned with history, anthropology, psychology, and sociology. Here, indeed, is a great battlefield. Religious preconceptions come in to oppose, for the most part, the fundamental deductions of research in these fields.

New knowledge often appears as an indictment of those very ideas which are so dear to the ill-informed. Hence, in order to avoid strife, controversial matters are taboo in the school. This means, of course, in bald terms that all knowledge calculated to stir thought in the most vital concerns of social welfare must be left severely alone. In order for learning to function effectively in our modern life, science must be *rehumanized*. To this end, one or two things must be done. In the first place, science must be synthetized. It is now separated into vast segregations of technical learning. The whole mass is presented in a stiff and formal jargon of technical terms familiar only to the expert and of all things most repellant to the common man.

The barriers between the different sciences must be broken down; the boundaries must be crossed and recrossed, and the whole must be clothed in a vocabulary common to all. The boundaries between the different fields of science are not sacred. They have not always existed; neither will they always exist as they do now. They have been erected as a convenient means of marking off certain areas of investigation and serve only the interests and the convenience of the special investigator. The previous results of the infinite labors of past and present scientific men must be rescued from this rigid entombment and made fluid and vital for the common man who stands so much in need of them.

All of this amounts to a plea for the rehumanizing of science. This is to be accomplished by divesting science, so far as possible, of its abstract and professional character. The humanizing of science should combine knowledge of the exigencies of scientific research with a philosophic outlook, human sympathy, and a species of missionary order. It will require a high degree of courage to write books of the character demanded—books which shall attempt to put the great achievements of science into popular language but which shall not "talk down" to the reader. In short, the whole domain of learning must be broken up and made fluid and flexible. Learning exists for man and not man for learning.

Rigid classifications in science and severely technical terms are necessary for scientific advance. They are destructive of all general diffusion of knowledge. Scientific men write too much for the consideration of their own craft, too little for the edification of the common man. All essential ideas are capable of expression in the common language of life. He who cannot translate the real contributions in any field of science into common speech may well doubt his mastery of that field. Technical and abstract processes are of value only as they contain a vital truth. Technique is for the specialist, necessary for him but not for the public.

Robinson's plea, then, is for a greater democratizing of science. In teaching and in writing, simplicity shall take the place of ponderous procedure. The teacher and the student must feel free to travel at will over the whole field of human learning that all treasures of human experience may enrich the common experiences of human life.

In one respect the reviewer must take issue with the author. The author complains bitterly that it is impossible, under existing conditions in the educational and publishing world, for any scientist to publish explicit statements of scientific conclusions respecting opinions or teachings in religion, economics, or social order. Publishers are afraid to invest in books which deny cherished opinions or dogmas, and educational authorities will not permit the plain teaching of scientific results in their institutions. That scientific opinion, opposed to common thought in controversial fields, must make headway against opposition is plainly evident. It is desirable that it should be so. But

that there is any such conspiracy of publishers, educational administrators, and the public as the author seems to see is hard, or impossible, to believe. The bogey which the author conjures up seems to the reviewer about the only blot on a very helpful, valuable, and stimulating work.

This book is a brilliant example of just the type of writing and teaching for which the author is pleading. It is, in the opinion of the reviewer, one of the most important works now available to the student of education. It was not written as an educational manual, but it is a valuable text on methodology. In seven short, simple, and vitally interesting chapters, the author has put more that is constructive and fundamental for education than has appeared in any other volume in recent years.

W. H. ANDREWS

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Evidences of educational progress.—A recent volume[1] by Otis W. Caldwell and Stuart A. Courtis presents a most interesting and dramatic picture of three-quarters of a century of educational progress in the United States. Taking its inspiration from what is probably the first school survey in history, namely, that of the School Committee of the City of Boston in 1845, it tells the threefold story of the evolution of the public-school organization, the realization of the ideals of that almost uncanny prophet, Horace Mann, and the justification of the faith of the American people in their public-school system as evidenced by their continued willingness to spend larger and larger sums toward a system of free universal education.

The first 160 pages of the book are devoted to a description of the Boston survey of 1845 and a summary of the school conditions in Boston at that time, together with an account of the administering of portions of the survey tests to 40,000 eighth-grade pupils in forty-six states in 1919. An inventory of the administrative and instructional aspects of education, then and now, reveals point by point the realization or failure of realization of the recommendations made by the Boston grammar and writing school committees and by Horace Mann. Almost without exception, the record of seventy-five years is positive accomplishment.

Pages 161–392 are made up of eight appendixes which present the full reports of the Boston grammar and writing school committees, extracts from Horace Mann's comments in the *Common School Journal*, the full text of the 1845 tests with representative answers and tabulations of the returns, the 1919 tests and results, and sample pages from the textbooks of the earlier period.

The 1845 tests consisted of 164 questions covering seven subjects: history, geography, arithmetic, grammar, definitions, natural philosophy, and astron-

[1] Otis W. Caldwell and Stuart A. Courtis, *Then and Now in Education: 1845–1923*. Yonkers-on-Hudson, New York: World Book Co., 1923. Pp. x+400.

omy. In addition, samples of handwriting were obtained. The 1919 tests reprinted five questions of each of the subjects mentioned except astronomy and handwriting, the selections being made with a view to fairness to both periods. Fortunately, the tabulations of the 1845 committee presented the percentage of correct replies to each question, thus making exact comparisons possible.

Chapter vii is devoted to comparisons of the relative attainments of pupils in 1845 and 1919. The general outcome is stated as follows:

> (1) Present-day children tend to make lower scores on the pure memory and abstract skill questions and higher scores on the thought or meaningful questions; (2) the changes which have taken place are general throughout the country; and (3) the efficiency of present instruction, even at its best, although higher than in 1845, is still far from satisfactory. In other words, there are still many unsolved problems in education [p. 85].

The 1919 group of pupils were most inferior in formal computation, definitions, certain aspects of grammar, and memory questions in history and geography. They excelled most in grammar, history, natural philosophy, and geography. The median percentage of correct replies was 37.5 in 1845 as compared with 45.5 in 1919. A sample of typical differences in the responses is found in the fact that in 1845, 35 per cent of the children knew the date of Jefferson's embargo and but 28 per cent knew the meaning of the act, while in 1919, only 23 per cent knew the date and 34 per cent knew the significance of the act. Comparing 1919 with 1845, 76 per cent fewer could solve the problem: "What part of 100 acres is 63 acres, 2 roods, and 7 sq. rods?" On the other hand, 54 per cent more answered correctly the question: "In a small boat which is in danger of being upset, should the passengers stand up or lie down in the bottom? Why?" These cases illustrate the general trend of the differences found between the pupils of the two periods.

Chapter viii presents a brief but comprehensive inventory of a modern school system (Detroit) as compared with the Boston schools of 1845; advances in administrative organization, instruction, buildings, teachers, care of the individual, socialization programs, grading, finances, etc., are cited in justification of the main thesis of the book, namely, that three-quarters of a century has seen remarkable progress toward free universal education. Many of the dreams and ideals of Horace Mann have come into being.

Many volumes have been written on the rise of the American school system, but the present work is unique in at least one respect. The evidences of progress have been *objectively* determined by means of educational measurements, thus rising above the level of opinion. It is the reviewer's belief that every school administrator and every thoughtful school patron can read this fascinating book with profit, gaining thereby added conviction of the fundamental soundness of American educational ideals.

G. M. Ruch

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The survey method applied to religious education.—The large amount of exact information which has been gathered during the past decade through numerous school surveys has led to clearer thinking on educational problems. The survey method is one expression of the scientific study of education. It is but natural to expect that a method which has been so productive when applied to public education would be equally valuable if applied to religious education. Volume I of the Indiana Survey of Religious Education[1] leads one to believe that such an expectation is entirely justified.

The report is organized in six sections. Part I describes the scope and methods of the survey and gives a condensed summary of the facts discovered and the recommendations of the survey staff. Part II gives a building survey of the Indiana churches. In this section the method of comparison is freely used. Most of the forty-six illustrations included in the report refer to the material in this section. Part III deals with the organization and administration of church schools. It covers such topics as official overhead control, organization of Sunday schools, devotional and missionary societies for children, Boy Scout organizations, and finance. Part IV deals with child accounting, records, and reports. Part V covers the very important matters of teacher-training and supervision of teaching. The last section, Part VI, deals with the Indiana Sunday School Association as a supervisory and promotional organization. It also reports the present status of the Indiana plan of giving high-school credit for Bible study.

This volume sets a high standard for other studies of religious education. The method of investigation has been objective, and a very large mass of facts is presented. The form of the report is excellent. The descriptive and explanatory material is supplemented by 175 tables and graphs which do much to make the findings clear to the reader. Certainly, previous to this, the workers in the field of religious education had never been able to study their problems on the basis of such a large array of factual information gathered by an intensive study of a small unit of territory. The outcome should be a much more scientific attack on these problems.

Typical of the findings of the survey are the following paragraphs from the general summary in chapter ii:

> Few of the newest and best churches in the state score as high as 600 to 800 on a 1,000-point standard, and these have given little attention to religious schoolrooms and community service rooms. . . . . A majority of the buildings are provided with hot-air furnaces, so installed that in most cases they are constant fire hazards. Practically no fire protection is provided [p. 54].
>
> The majority of the Sunday schools in Indiana are small schools. . . . . Sixty-five per cent have an average attendance of less than 100 pupils. Eighty-six per cent have

[1] Walter S. Athearn, E. S. Evenden, W. L. Hanson, and William E. Chalmers, *The Religious Education of Protestants in an American Commonwealth.* The Indiana Survey of Religious Education, Vol. I. New York: George H. Doran Co., 1923. Pp. 580. $5.00.

an average attendance of less than 200 pupils. The four-teacher school is most frequently found [p. 57].

Seventy per cent of the Sunday schools are completely ungraded, and 2.8 per cent are completely graded. . . . . Three out of every ten Sunday school classes are organized [p. 58].

Nine out of every ten Boy Scouts are from Sunday schools [p. 59].

The median annual cost for textbooks, lesson helps, papers, and supplies used in teaching per pupil in average attendance is $0.99; for rural schools, $0.92; for urban schools, $1.04 [p. 61].

Two hundred thousand Sunday school pupils are taught each Sunday by Indiana teachers who have had less than ten years of schooling. . . . . One-fourth of the teachers have had fewer than 8.8 years of schooling [p. 65].

Half of the teachers prepare their lessons early Sunday morning or late Saturday night. The typical male teacher spends 75.6 minutes a week in the preparation of his lesson. The typical female teacher spends 66.7 minutes a week on her lesson [p. 66].

Of 1,205 teachers reporting on lesson assignment, 550 said that they assumed that the pupils would take the next lesson and made no assignment [p. 67].

Compared with the rural public school teachers of Indiana, it may be said that *87.7 per cent of all the Sunday school teachers of Indiana fall below the lowest standards which are accepted by the state for rural public school teachers in Indiana* [p. 69].

The survey staff, in its recommendations, outlines a constructive program of religious education for the state. While the facts presented by the survey are discouraging to one who is interested in religious education, the outlook is more encouraging simply because the facts are brought to light. The survey is worth serious study.

G. T. BUSWELL

Adapting childhood education to childhood needs.—Of the numerous experiments in education that have been carried out during the last twenty years, those in the primary field have probably influenced general practice more than any of the others. As a result, we now have in many communities a thoroughly modernized primary school, a reconstructed kindergarten, and a co-ordination of the two which makes for real continuity in the school experiences of children from four to eight years of age. These experiments have been carried on in various parts of the country. One of them, recorded in a recent book,[1] was made in the South. It represents studies and experiments with three different groups of kindergarten and first-grade children. The authors, one a kindergartner and the other a primary supervisor, present, in the opening chapter of the book, a statement of the principles underlying the work described. The next three chapters discuss, in turn, the free period as an important part of the daily program of both the kindergarten and the first grade, children's natural responses to rhythm and the educational utilization of such instinctive reactions, and the types of instructional materials which are essential to the administering

[1] Lalla H. Pickett and Duralde Boren, *Early Childhood Education*. Yonkers-on-Hudson, New York: World Book Co., 1923. Pp. viii+220. $2.00.

of such a curriculum as the authors advocate. Each of these topics is fully illustrated. The five remaining chapters, covering about two-thirds of the volume, are devoted to the curriculum for the kindergarten and the first grade. The activities for a year as actually carried out in each of the two grades are recorded in detail, and the achievements in each subject or activity are listed. Reports of typical days in each of the grades, one early and the other later in the year, are also included. An appendix contains suggestive lists of poems, stories, songs, games, rhythms, etc.; a recommended list of phonograph records, giving the titles and numbers; and a list of the articles of equipment desirable for a kindergarten of eighteen children. Each of these lists is accompanied by information concerning the companies from which the various items may be purchased.

There can be no doubt that just such descriptions of the practical applications of theory as are contained in this book are needed. Too many of our books on education lack the concrete illustrations which show how fundamental principles really function in school work. In the case of the present volume, however, one feels that the value of the concrete material would have been enhanced by a somewhat fuller and more clearly organized presentation of the underlying principles. As it is, the book will prove very useful as a supplementary text in teacher-training courses in kindergarten and primary education and helpful to teachers in the field who are trying to reorganize their teaching in terms of the interests and needs of the children.

ALICE TEMPLE

New readers for the primary grades.—Two significant tendencies are discernible in a group of recently published primary readers. The first tendency is that of developing distinct types of readers rather than preparing one book for all kinds of reading. The second noticeable tendency is that of providing additional material of the same type by the publication of a supplementary or advanced book which deals with the same characters already made familiar to the pupils in an earlier book.

A reader[1] prepared by Ernest Horn and Grace Shields for the first grade illustrates the first tendency. This book has for its major purpose teaching pupils how to study. Its material is factual and informational in character. It is intended for silent reading after some of the fundamental reading habits have been developed. The selections are very well chosen, embodying such topics as "How to Take Care of a Dog," "How to Answer the Telephone," and "Street Safety." Thirty-seven selections of this type furnish the child with a large supply of wholesome facts. The pupils are expected to put forth the mental effort necessary to learn these facts and thereby be initiated into the study process. The mechanical construction of the book is excellent. There is a seventy-page manual of most helpful directions. This reader,

[1] Ernest Horn and Grace Shields, *Learn to Study Readers*, Book One (teachers' edition). Boston: Ginn & Co., 1924. Pp. xiv+70+150. $0.80.

which is the first of its type to come to the reviewer's attention, sets a high standard for books intended to develop serious, careful reading habits. It will be a useful supplement to the commonly used literary readers.

A second book[1] which illustrates this type of serious study reading has been written by Ethel M. Hale. This book, which is intended for the second grade, is made up of factual material from the field of elementary science. Twenty-eight selections are given covering a wide range of topics. Each selection is followed by a series of questions. In some cases, there are additional testing devices, such as true-false statements or directions to search for definite words. The illustrations are either photographic reproductions or diagrams in black and white. The absence of color detracts much from the book from the child's point of view. The selections are formal and frequently lacking in interest. Their somewhat encyclopedic style is illustrated by the following typical paragraphs:

> Cats are from fourteen to sixteen inches long. They have soft fur. Their teeth and claws are very sharp. They can see well in the dark. There are five toes on each front foot, and four on each hind foot [p. 1].
>
> The teeth are an outgrowth of the skin. They are hard, white, and shiny. Their work is to cut, tear, and grind the food. Men and many animals have two sets of teeth [p. 49].

The author's purpose of presenting factual and logical material is a laudable one. However, considering the inherent difficulties in introducing children to this type of material, it would seem advisable to present it in the most attractive style compatible with such content rather than to add to the difficulties by presenting it in a dry and abstract form.

Illustrative of the second tendency, namely, that of providing additional material dealing with the same characters, is the extension of the Elson readers. In the new series[2] there are now available a primer and the fifth, sixth, and seventh readers. The new primer adds only sixty-four words to the list used in the old primer. The book, therefore, affords an extended amount of practice without added vocabulary difficulties. Since the child is already familiar with the characters in the stories, he approaches the new book with a more vivid interest. Some of the classic literary selections have been slightly changed to make them more suitable for children's reading. The revised ending of the story of "The Three Bears" is a good example of this. The art work and the general make-up of the book are better than in the case of the basal primer. The selection of materials for the upper-grade readers is good. This extension

[1] Ethel M. Hale, *Lippincott's Silent Reader*, Second Grade. Philadelphia: J. B. Lippincott Co., 1923. Pp. viii+108.

[2] William H. Elson and Lura E. Runkel, *Child-Library Readers*. Primer, pp. 144 (1923). William H. Elson and Mary H. Burris, *Child-Library Readers*. Book Five, pp. 416 (1923). Book Six, pp. 448 (1923). Book Seven, pp. 512 (1924). Chicago: Scott, Foresman & Co.

series will find a place in the elementary schools in providing that quantity of reading matter which is essential to the development of effective reading habits.

Another example of providing new stories about familiar characters is furnished by a supplement to *The Fun Book* by Mabel Guinnip LaRue. The new book[1] contains sixteen stories very attractively written and illustrated. The total vocabulary of the book includes seven hundred words. If this book is used as a supplement to the author's previous book, a substantial amount of practice is afforded for the words used. While the type of material presented is similar to that with which the primary grades are already oversupplied, the stories are superior in style and interest to many of those in the older books.

An addition has also been made to the Field series of readers in the form of a book[2] for the second half of the second grade. No material changes in form or content appear. One cannot help feeling that children will be confused by the rapid shifts from fact to fancy in the numerous selections given. So many types of reading are used that the effect of practice on any one type is considerably jeopardized. The book affords a marked contrast with the recent tendency to emphasize one type of reading in a book and to provide drill on that one type until the pupils master the reading habits involved.

The publication of the various types of books represented indicates a wholesome progress in the teaching of reading. The schools have now reached the stage where a single book can no longer constitute the sole basis for the teaching of reading. If, in the selection of additional books, the schools will choose a group which collectively emphasizes the various kinds of desirable reading habits, the multiplication of books will serve a useful end. If the schools will recognize such differences as exist between factual and fanciful materials, between reading for pleasure and reading for study, and between expanding the course by supplementation and expanding it by duplication, the training afforded the pupils will be greatly improved.

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[1] Mabel Guinnip LaRue, *Under the Story Tree.* New York: Macmillan Co., 1923. Pp. iv+140.

[2] Walter Taylor Field, *The Field Advanced Second Reader.* Boston: Ginn & Co., 1924. Pp. 216. $0.72.

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